DOCUMENT RESUME

ED 347 896 HE 025 659

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TITLE Healthy America: Practitioners for 2005. An Agenda for Action for U.S. Health Professional Schools.
INSTITUTION Pew Health Professions Commission, Durham, NC.
PUB DATE Oct 91
NOTE 118p.
AVAILABLE FROM Pew Health Professions Program, 3101 Petty Road, Suite 1106, Durham, NC 27707 ($9).
PUB TYPE Reports - General (140) -- Information Analyses (070)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Agenda Setting; *Allied Health Occupations Education; Dentists; Educational Change; Educational Trends; Family Practice (Medicine); *Futures (of Society); Higher Education; Medical Education; *Medical Services; *Needs Assessment; Nurses; Pharmacists; Physicians; Preventive Medicine; *Primary Health Care; *Professional Training; Telephone Surveys; Trend Analysis; Veterinarians

ABSTRACT

This report presents recommendations of the Pew Health Professions Commission regarding changes in health care education. It identifies 17 competencies that practitioners should be prepared for by the year 2005. Recommendations include: expand access to effective care; provide contemporary clinical care; emphasize primary care; participate in coordinated care; practice prevention; involve patients and families in the decision-making process; promote healthy lifestyles; assess and use technology appropriately; manage information; provide counseling on ethical issues; accommodate expanded accountability; and continue to learn. Health care trends by the year 2005 are identified, including efficiency and effectiveness through coordinated care; diversity and aging in the population; tensions in the expansion of science and technology; consumer empowerment; and an increasing role of values in shaping health care. Major strategies for change in health professional education recommended are: (1) schools should redefine their educational core; (2) schools should restructure for the tasks ahead; (3) universities should foster innovation; (4) health professional associations should facilitate professional redefinition; (5) government should support change in health professional education; and (6) the public should participate in redefining health care and the role of professionals. Appendices (comprising 80 percent of the report) include a report on health care issues and trends and the activities of The Pew Health Professions Commission. (DB)

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Healthy America: Practitioners for 2005

An Agenda for Action for U.S. Health Professional Schools

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A Report of
The Pew Health Professions Commission
October 1991

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Suggested citation: Shugars DA, O'Neil EH, Bader JD, eds. Healthy America: Practitioners for 2005, an agenda for action for U.S. health professional schools. Durham, NC: The Pew Health Professions Commission, 1991.

The Pew Health Professions
Commission is assisting
schools of allied health,
medicine, nursing,
public health and
medicine develop
and programs that are
to the changing health
Americans.

Healthy America: Practitioners for 2005

An Agenda for Action for U.S. Health Professional Schools

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Foreword by Thomas W. Langfitt, M.D., President, The Pew Charitable Trusts

The Pew Health Professions Commission was inspired by the belief that the education and training of health professionals is out of step with the evolving health needs of the American people. Consequently, reorganization and refinance of the health care system, which are at the center of the health policy debate, are not a sufficient response to the nation's health care problems. Simultaneous improvements in the education and training of health professionals are required. Building on these beliefs, the Commission was charged to explore the attitudes and skills that health practitioners ought to possess to be most responsive to the health needs of the public, then to offer a prescription for change to meet these needs.

Arguments have been made that health care in the United States is too disorganized to warrant the title of a system, but I believe the nation does have a health care system if viewed from the level of individual patients and health professionals instead of from on high. Better stated, we have tens of thousands of microsystems. When patients take ill they enter a microsystem consisting of: a physician in charge of the patient; a hospital with nurses, physician specialists, administrators and a host of other professionals; diagnosis and treatment plans designed to return the patient to good health; and follow-up visits to help the patient through the process of recovery and advise him or her on healthy living. All patients who seek health care (and can pay for it) enter a microsystem more or less like this one, and when that system works well, as it often does, those patients receive health care equal in quality to any in the world.

But countless microsystems do not work well. No one is managing the patients' transitions through the system. The ordering of diagnostic tests is incoherent and excessive. Medical and surgical interventions are performed without a clear understanding of the expected outcomes by either

the physicians or the patients. Social and emotional factors that contribute to the patients' illnesses are lost in the rush. Little attention is given to strategies that will help prevent recurrence of those particular illnesses or other health problems. And many incurable patients are not allowed to die at their request and with dignity.

To my mind, the inadequacy of these microsystems is the root problem in American health care today, and no amount of restructuring or refinancing at the macro level will correct it. In fact, significantly restricting the resources available to this kind of enterprise could have dire consequences because there is little reason to believe that resource containment alone will cause the countless microsystems to behave in more rational and effective ways. They probably do not know how. Consequently, the quality of patient care likely will suffer.

The Pew Health Professions Commission believes that change must begin with a new vision of what health professionals ought to be doing that they are not doing today. In general terms, they need to be closer to the patients and their families, and they need to understand better why people behave the way they do, particularly under stress. The ultimate goals of the health professions are to cure those diseases that are curable and contain those that are not in ways that allow individuals to function as well as they can. The traditional model of medical education and practice, based largely on organ specific physical illness, is no longer adequate. Conversion to the new model recommended by the Commission is the greatest single challenge faced by the health professional schools.

The conversion will be difficult. Many educators and professionals believe there is nothing wrong with the present models, although their numbers are dwindling. Some accreditation and licensure requirements as well as methods for reimbursement of professional services discourage the new practices recommended by the Pew Commission. Deans and faculties contend, with good reason, that they cannot change curricula in

their schools toward the new models without the cooperation of credentialing and professional reimbursement organizations. New funds will be needed to experiment with new models of education and training, and the source of those funds is not apparent. Finally, health outcomes must be improved through a better understanding of the effectiveness of each diagnostic and therapeutic intervention, and outcomes management should be an integral part of future health professional curricula in ways that are largely unexplored.

If the recommendations of the Pew Commission are adopted by the health professional schools and implemented over time, we believe that physicians and other health professionals will learn to practice more effectively and both the professionals and their patients will be more satisfied with the care than they are today. If outcomes management is successful, many costly procedures will be abandoned, so practice will not only be more effective, it will be more efficient. But all of this will take time. The generational period for a physician, for example, is eight to ten years from matriculation in medical school to completion of residency training. Investments made long-term, and with patient expectations, are required.

I believe health care reform should proceed along two parallel paths: reorganization and refinance of the system to contain costs and provide access for all citizens; and reform of education and training to produce more effective and responsive professionals. One without the other is not enough.

Sincerely,

Thomas W. Langfitt, M.D.
President, The Pew Charitable Trusts

Preface by David R. Clare and William C. Richardson, Co-Chairmen

The health professionals of the early twenty-first century are already beginning to enter our educational system, either as undergraduate or professional students. How do we ensure that today's students will contribute to and thrive as practitioners in tomorrow's radically different and ever-changing new health care environment?

That question frames the basic charge of the Pew Health Professions Commission. Much of the nation's attention has focused on considering ways to improve access to the system by all and to limit cost. The Commission believes that an integral element of the evolving health care system is to be found in addressing the needs for reform in health professional education.

The staff of the Commission has gathered information from a variety of sources to understand the forces that will shape health care in the future. From that understanding, the members of the Commission – twenty-seven individuals, interdisciplinary in their fields of expertise and drawn from both the public and private sectors – considered the competencies that will be needed by the health practitioners of the future. Those competencies – expanded skills and new attitudes – form the core of this report.

In addition to the competencies advanced in this report, we suggest key elements of an approach to accomplishing change within the educational institution. It starts with developing a vision of the future and then a strategic plan for accomplishing the needed changes. Our approach also encourages and assists every school of allied health, dentistry, medicine, nursing, pharmacy, public health, veterinary medicine and all related disciplines and professions to interpret that vision for themselves and to enact programs that make the new vision a reality.

As we suggest reform, we support those who currently head the nation's health professional schools. Upon them will fall the responsibility to lead in the introduction and management of any change made in anticipation of the future. Of equal importance is active communication among faculty, administrators, alumni, staff, students and the community about the future and steps the school is taking. Some have started the process and we applaud their efforts.

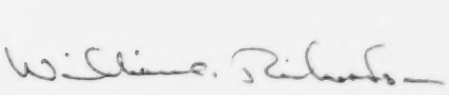
Healthy America: Practitioners for 2005 bears the signatures of all of the individual members of the Commission. Those signatures, however, do not signify that they endorse every detail of the report. Individual members did have and continue to have reservations about some of the recommendations. We've tried, where possible, to reflect that diversity. Ultimately, we enjoy their unanimous support for the broad themes and competencies and the importance of their being addressed at each institution.

The Pew Commission wants and needs the involvement of everyone concerned with the future of our nation's health care system in supporting and facilitating the necessary changes. We want to hear your reactions to this report. What did we miss? What would you change? We invite you to write us, or the staff of the Pew Commission, at 3101 Petty Road, Suite 1106, Durham, North Carolina 27707. If you care to call the staff at 919-490-6695 they would be happy to receive your comments. They are continuing to update the data on trends affecting health care and its educational component. Your contributions are important to that effort.

This report is a commencement, the beginning of a long period of commitment to change. Its premise is the powerfully simple notion that health professionals can be educated not only to contribute and thrive in a different environment but also to help in changing the system for the better. We have presented carefully considered recommendations for that change and key strategies for its implementation. All of this is designed to support thoughtful leaders in accomplishing the Agenda for Action. You are critical to that process! Join with us in this vital activity to ensure that future professionals are appropriately educated to meet the health care needs of us all.

Sincerely,

David R. Clare
Co-Chairman
Former President
Johnson & Johnson



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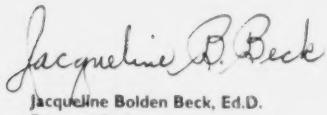

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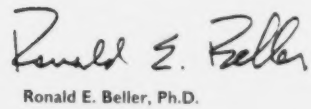

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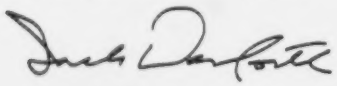

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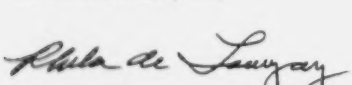

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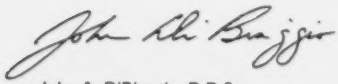

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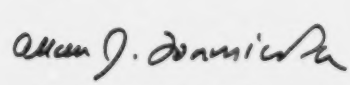

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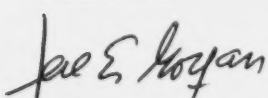

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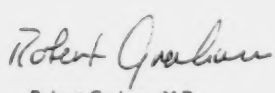

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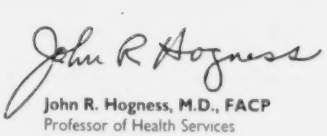

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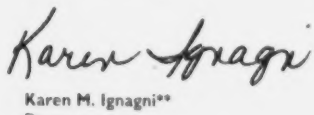

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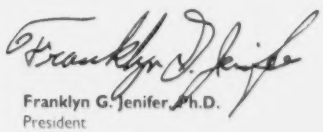

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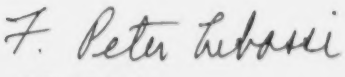

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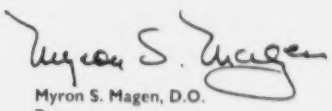

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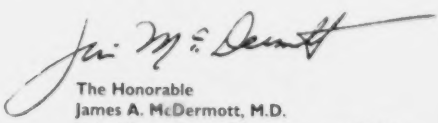

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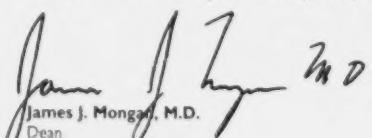

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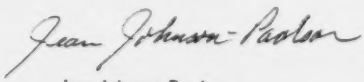

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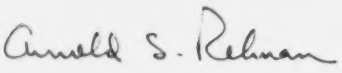

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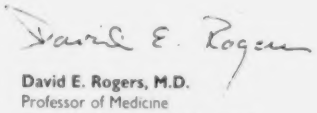

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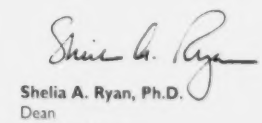

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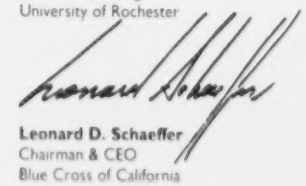

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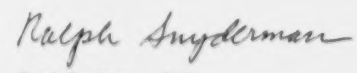

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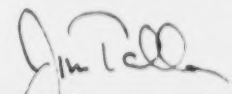

Assemblyman James R. Tallon
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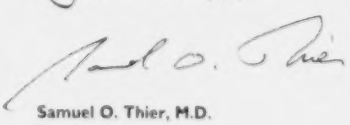

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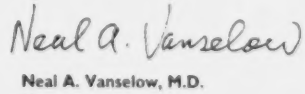


Neal A. Vanselow, M.D.
Chancellor
Tulane Medical Center

* Senator Danforth offers the following statement: Changing health professional education in order to prepare practitioners for the next century is a small, but important, step in the overall task of reforming our nation's health care system. It is imperative that we, as a country, also address the broader and more critical issues of the financing, limits, and accessibility of health care.

** Commission member Ignagni supports the need for practitioners with expanded abilities and new attitudes, however, she does not agree with some of the specific recommendations set forth in this report.

Agenda for Action Summary

The Pew Health Professions Commission believes that the nation's health professional schools must play a more active leadership role both in the preparation of practitioners for the twenty-first century and in shaping the values and direction of the entire health care system. In its Agenda for Action, the Commission has established that the nation must have practitioners with expanded abilities and new attitudes to meet society's evolving health care needs.

Competencies for 2005

Practitioners for 2005 should:

- Care for the Community's Health
- Expand Access to Effective Care
- Provide Contemporary Clinical Care
- Emphasize Primary Care
- Participate in Coordinated Care
- Ensure Cost-Effective and Appropriate Care
- Practice Prevention
- Involve Patients and Families in the Decision-Making Process
- Promote Healthy Lifestyles
- Assess and Use Technology Appropriately
- Improve the Health Care System
- Manage Information
- Understand the Role of the Physical Environment
- Provide Counseling on Ethical Issues
- Accommodate Expanded Accountability
- Participate in a Racially and Culturally Diverse Society
- Continue to Learn

Strategies for Change

The Pew Commission's Agenda for Action specifies the strategies for achieving the change needed in health professional education. These strategies for change are:

Schools Should Redefine Their Educational Core

- *The Disciplines Represented in the Core*
- *The Settings in Which Clinical Education Occurs*
- *The Teaching-Learning Process*
- *Health Care Teamwork*
- *Curricular Effectiveness*
- *Educational Flexibility*

Schools Should Restructure for the Tasks Ahead

- *Institutional Mission*
- *The Community's Health*
- *Organizational Structure*
- *Faculty*
- *Reward Structures*
- *Continuing Competency*
- *Education Costs*
- *Research*

Universities Should Foster Innovation

- *Leadership*
- *Skill Development*
- *Strategic Direction*
- *Flexibility*
- *Diversity*
- *Professional Boundaries*
- *Accountability*
- *Integration*

Health Professional Associations Should Facilitate Professional Redefinition

- *Redefinition of the Professions*
- *Educational Leadership*
- *Educational Service to the Profession*
- *Regulation*

Government Should Support Change in Health Professional Education

- *Education Incentives*
- *Accreditation*
- *Licensure*
- *Access to Care*
- *Manpower Policy*
- *Financing Incentives*

The Public Should Participate in Redefining Health Care and the Role of Professionals

- *Demand for Responsive Providers*
- *Guidance in the Use of Health Resources*
- *Consumer Involvement*
- *Support for Health Promotion*

A Framework for Change

Access to care, quality of care, cost of care – the phrases have become the policy buzzwords for state legislators, federal policymakers, private payers, purchasers of health care and the providers and consumers of care. These three phrases reduce an enormously complex arrangement of financing schemes, delivery mechanisms, manpower policies, professional interests, governance structures and social and economic realities to three seemingly simple concepts. But the seeming simplification cannot mask the reality that the nation's health care system is seriously out of control regarding each of these issues. There is growing concern over a range of access issues centered on the 37 million people in the nation who cannot find ready access to care. Quality of health care is increasingly under question by the public who use as well as the professionals who provide that care. Finally, the cost of the system demands attention and limits the capacity to respond to issues of quality and access. In concert, these three forces create the miasma that defies penetration by our understanding much less consensus on what can be done to address these issues at all levels of policy.

Responding to such a complex problem will require a strategy involving the host of policy mechanisms addressing issues of finance, delivery, manpower, professional practice and public involvements. No single or quick fix will suffice. There are two principal "leverage" points through which to facilitate the needed change. These points are the *arrangements for care* and the *health care provider*. Attempts over the past decades to intervene in the arrangements for care demonstrate how the complexities of the system defeat most attempts to introduce coherence and direction. This "top-down" approach to achieving the desired outcomes can be difficult in our polymorphic, pluralistic system.

In contrast, achieving change in the health care system by changing the health care provider represents a "bottom-up" approach. Such an effort must examine and address the skills, attitudes and values that the nation's eight million health care workers bring to the delivery, management and direction of the institutions and professional practices that provide care. The kind of care these individuals provide, how they provide it, what they value and how they interact with each other determines to a great extent the quality and cost of health care. The ways in which professionals are organized to provide care shapes to a considerable degree many of the issues that drive access concerns. Some of these changes can and will be addressed by policies that direct delivery structures and reimbursement of care. While absolutely necessary to change the system, they are not sufficient to redirecting professional skills and values. Accomplishing this change requires a dynamic and proactive system of health manpower education and reeducation.

Over the past seven years, The Pew Charitable Trusts have committed themselves to strengthening the health professions through a series of programs aimed at health professional education. The programs have focused on achieving within schools the structural changes that empower them to respond more effectively to the nation's current and emerging health care problems. Experience in these programs has both emphasized the difficulties in effecting lasting institutional change and demonstrated that the strategy can be effective. The clear message from these programs is that individual health professional schools can change their curricula to address current and emerging problems. To do so, however, the schools require both internal redirection and reform, as well as modification of the external environment in which they operate.

It is this approach to change that the Pew Health Professions Commission embraces in presenting its Agenda for Action for health professional

education. Health professional schools represent an excellent and essential leverage point for initiating and maintaining coordinated change. Schools can establish in new providers the skills, knowledge, values and practice orientations needed in the next decades. Schools house the majority of the existing resources for needed evaluations of the current health care system. They provide a unique opportunity to conduct research to assist in the redirection of the health care system. Schools also have the potential of modeling new arrangements for organizing, delivering and financing health care and health care delivery.

Reaching this potential will require that health professional schools change themselves in some very fundamental ways. Educational change will require dedicated leadership from faculty and administrators within these schools. But internal leadership alone will not be adequate. Their work must be complemented by a concerted effort to change policies surrounding the issues of governance, finance, accreditation and licensure. These issues must be addressed by federal, state, professional and higher education policy bodies.

These reforms will not be accomplished easily. The traditional resources for change – federal and state support – will not be available as they have been in the past. Instead, schools and professions must learn to work together in ways unimagined even in the recent past. These new teams must then engage the broader community of health care practitioners in a much more fundamental fashion than has been the pattern. The broadest community of payers, purchasers, patients and consumers must be involved in every aspect of the reforming efforts.

To facilitate this necessary coordinated response, The Pew Charitable Trusts created the Pew Health Professions Commission. The Commission's objectives are to:

- Establish a national Agenda for Action for all health professional schools;

- Develop appropriate policy recommendations for federal, state, professional and institutional agencies that will support the attainment of the Agenda for Action;

- Communicate the Agenda for Action, the policy recommendations and the need for change to audiences in education, the professions, government, business and the public at large;

- Create an ongoing forum for the discussion of issues, a clearinghouse for information and a center for advocacy for change within the health professional schools; and

- Invest in targeted demonstration projects that reflect the national agenda at the health professional school and college level.

The first of the Commission's objectives, the Agenda for Action, is described in this report, together with the background information that forms the rationale for the content of the agenda. The Commission identifies broad trends in the population and the health care system that will demand new skills and knowledge among health providers in the future. The challenges that health professional schools will face in training these future providers are also reviewed. The final section describes the Agenda for Action, which will serve as the cornerstone for all of the Pew Commission's subsequent activity.

In the final analysis, the Commission's recommendations must be evaluated by each dean, faculty and school. They must decide what here is real and what speaks to their past traditions and future missions. But they must act to change. The outside world and the society that supports them demands such a response. Failure to make an effort to understand and respond violates the basic covenant between health professionals and people they have obligated themselves to serve.

Health Care Trends 2005

In developing the Agenda for Action, the Pew Health Professions Commission analyzed the forces that will shape the nation's health care system over the next 15 years. This analysis considered a complex set of trends ranging from the broad forces of demography and epidemiology to concerns of quality and access within the health care system. The power of these trends to shape the future cannot be understated. However, it is difficult to discern precisely what health professional schools should do in response. Clearly, all professions and schools will not respond to the trends in the same way, nor should they. Rather, the Pew Commission believes that over the next 15 years the health professional schools will make accommodations to these environmental changes that reflect their interpretation of the trends, their traditions and missions and the needs of the populations that they serve.

This analysis presents the Pew Commission's judgment of what the general characteristics of the health care system are likely to be in the year 2005. While the Commission cannot forecast the details of that system, it has concluded that five broad forces will shape the system and determine the characteristics needed by health professionals. These five forces represent a distillation of the various trends presented in Appendix A of this report. While the effects of these broad forces will differ across health professions, across regions of the country, and across sociocultural groups, the forces do summarize the principal underlying issues that will drive change in health care in the coming decades.

Efficiency and Effectiveness Through Coordinated Care

The need to contain the nation's health care costs has become one of the most dynamic and powerful of all the forces affecting the health professions. Efforts to contain costs have pushed the health care system

toward an increasingly complex and sophisticated array of management and incentive structures. Regardless of who pays the bill, it is likely that highly coordinated care will become more prevalent as financial pressures increase. This trend is giving rise to a new set of priorities that emphasize cost-effectiveness, quality and management.

More integrated and intensively coordinated systems will prompt other changes in how the nation both thinks about and delivers its health care. One result will be the capacity to expand from a system focused solely on the provision of individual care to a system that also addresses overall population health. A second result will be a diversification in the mix of providers as well as in the roles of these providers as these new systems seek to deliver care in the least expensive and most appropriate manner. This diversification will mean a dramatic alteration in who delivers care to whom, when and where. Less often will the physician be the primary point of entry to health care. Curative and preventive services will be delivered in lower-cost settings through a more judicious mix of primary care and specialty services. This shift also will create more demand for ambulatory and community-based care alternatives to the existing pattern of hospitalization.

Finally, the coordinated care system will develop mechanisms to continually and systematically measure outcomes, improve quality, encourage practitioner accountability and standardize patterns of practice. By their nature, coordinated care systems will have the organizational capacity and the incentive to use these mechanisms to increase the efficacy and cost-effectiveness of care. Practitioners will be increasingly valued for both their traditional clinical skills and their management abilities.

Diversity and Aging in the Population

Over the next 15 years the population in the U.S. will be characterized by a rapidly increasing number of elderly adults. This change will have a profound impact on the total health care system as individuals in this age group come to comprise a larger portion of the health care consuming market. The shift in the age of the population will further accelerate another trend that is characteristic of twentieth century epidemiology. The movement from an acute to a chronic disease burden for the nation will become even more evident in the early years of the next century. The health care system, which has been focused largely on treatment of acute disorders or the acute manifestations of chronic disorders, will move gradually to a system that delays the onset of inevitable chronic disorders through prevention and education. Accompanying this change will be a general shift from *cure* to *care* as the health care needs of the population change. The growing older segments of the population will increase at a faster rate than the younger segments. This trend has many implications for the

health of the nation as it will place a growing burden on the younger segments of the society to provide and pay for the expanding services required and demanded by the older segments. Moreover, there will be a smaller pool of young persons to pursue health professional careers and to fill the ranks of health professional faculty left vacant by substantial numbers of retirements.

The 1990 census shows that the nation has become ethnically and racially more diverse in the past decade. The rate of population growth among minorities is more than double that of the white majority, and this trend is expected to continue. It is projected that by the year 2000, 30 percent of Americans will be Hispanic or of a racial minority. These trends are even more dramatic in certain states and regions.

Growing racial and ethnic diversity will profoundly affect health care in the U.S. On the demand side, the health care needs of minorities, who are typically underserved, are shaped by their cultural values, economic well-being and disease patterns. On the supply side, minorities, previously under-represented in the health professions, will become a large part of the pool of potential applicants to health professional schools. Health professionals in general and health professional educators in particular will need to understand and relate to the special needs of this growing segment of society.

Tensions in the Expansion of Science and Technology

The last three decades have witnessed an amazing growth in the diagnostic and therapeutic capabilities brought about by technology. The public has benefited from and will continue to demand access to these technologies. However, there are increasing calls for balancing this dimension of health care with other values that emphasize quality of life, consumer choice, risk-benefit decisions, access and the integrity of human life. A health care system driven by technology will further depersonalize care, and fragment it into a series of short-term encounters with a growing number of technically oriented, specialized providers. The public will continue to value these technological resources, but increasingly will demand that they be incorporated into a more integrated system.

The growth of biotechnology, such as

genetically-based diagnostic and treatment capabilities, will redefine the meaning of illness, disease prevention, health and health care. Society's response to the opportunities offered by new technology will be characterized by both new fears and new hopes, which must eventually be addressed by health care providers. The effects of biotechnology will continue to unfold over the entire practice life of today's health professional students, and they will be challenged to anticipate the transition and lead the way in interpreting clinical practice within its context.

The technology to produce, store, retrieve and use information will continue to expand rapidly. This trend will put more pressure on health practitioners to learn how to use these tools in health promotion, disease prevention and the diagnosis and treatment of disease. This technology will also alter the ways in which health professionals interact with each other. The capacity to collect and analyze large amounts of data will provide the practitioner and the health care system with the tools to begin to understand and evaluate clinical practice from the perspective of population health.

Finally, the growth of information technology and biotechnology will change the character, dissemination and use of biomedical research. These changes will affect health professional schools directly. Biomedical research will become more sophisticated and specialized, and fewer institutions will be capable of competing for research support. Research results will be communicated broadly and rapidly to educational and clinical settings by expanded use of information technology.

Consumer Empowerment

The relationship between the consumer and the provider of health care services has changed over the past 20 years. Issues such as informed consent, litigiousness, quality assurance and cost containment have all caused the provider and consumer to view each other in a new light. The next 15 years will witness an even more dramatic evolution of expectations and obligations between the consumer and the provider due to shifting expectations, an emphasis on health promotion and growing consumer cost sharing. Confusing the issue for the health care provider will be the unequal presence of these forces across segments of society.

The better educated segments of the population have embraced the wealth of medical information available to the general public through the mass media. More pervasive diffusion of less complex and more understandable information has demystified medicine and personal health in the eyes of the public. In addition, cer-

tain segments of society have grown to expect ready access to goods and services in general, with medical care as no exception. These same segments of society also have developed an expectation that treatment services will rid them of the ill-effects of disease well into their later years. They will not accept their "lot" in health care without a fight and will expect the unqualified support of the provider in that war on infirmity. This greater knowledge and these heightened expectations will serve to alter the provider-consumer relationship. However, for those in lower socioeconomic groups, improvement in this awareness and development of these expectations are not likely.

A segment of the society is placing a high priority on health promotion. Wellness programs, exercise regimens, dietary concerns and the growing array of self-diagnostic and self-treatment technologies all testify to consumers' active involvement in and concern about health maintenance. This development has contributed to a reorientation of some consumers from persons who passively receive the instructions and ministrations of the provider to consumers who demand information and guidance from the provider in an effort to maintain health.

Consumers will bear a greater share of their health care costs in the coming decades. This increased cost sharing will lead to more active involvement in decision making about their care. Consumers will exercise greater discretion in choosing providers and purchasing health care services. They will also expect greater accountability, effectiveness and efficiency from the provider they select. Advance information of provider and system treatment outcomes and costs will form part of the consumers' selection process. Finally, consumers will make decisions about their health care based on issues of convenience as well as perceptions of quality and cost.

Values that Shape Health Care

The trend toward a greater role for the population perspective of health care is indicative of a parallel growth in tension between the two core values of the rights of the individual and the importance of the common good. Many of the tensions in the current system of health care are produced by conflicts arising from the social and ethical choices presented by issues of access to care, equitable use of health resources, quality of life and extension of life.

As one of only two industrialized countries in the world that does not guarantee financial access to health care for all citizens, there is growing dissatisfaction in the U.S. with the current system. More than 30 million Americans are without health insurance. Less than one-half of the population below the poverty level qualifies for Medicaid. Citizens in rural areas are faced with a disproportionally low number of physicians and growing hospital closures.

An unacceptably large number of Americans die prematurely from causes that are largely preventable. The growing number of state and federal proposals and programs designed to address these issues suggests that access to health care will remain an important social issue for years to come. Steadily increasing costs for health care have prompted continued debate over the need for explicit prioritization or rationing of health services. Increasingly, health care providers will encounter these issues routinely as they attempt to provide appropriate care to their patients.

Considerations of quality of life, extension of life, and death are becoming more complicated. In recent years the health care system often has followed a basic decision rule: to extend life using all measures. This rule does not work in all settings as patients, families and society explore more complex issues involving the definition of death, the patient's wishes and the equitable distribution of social resources. Health care professionals of the future will be looked to for guidance, direction and understanding on all of these issues. They will no longer be permitted to retreat to a purely clinical realm, but will be forced to develop new professional skills to address these issues, to provide assistance through informed and caring decision-making and to enter the public debate of health care.

Challenges to Change in Education

The Pew Commission recognizes that there are challenges that health professional educators face in their attempts to institute substantive and lasting change in response to the trends shaping health care. The challenges to change come from inside and outside the schools that educate health professionals. The structure of the university, the nature of health professionalism, the pattern of financing health care and education and the resistance to change that all large bureaucratic organizations foster tend to maintain the status quo and limit change, vision and creativity.

Limits of Vision

Throughout the twentieth century the health professions have been enormously successful in improving the public's health. These contributions have come about in part by a vision of how the academic disciplines might interact in a program of education, research and patient care. While much has changed since the initial recommendations, a great deal of the vision for the health professions goes back to the report for medical education first advanced by Abraham Flexner.

But as it has evolved, this paradigm has focused separately on the biomedical sciences and the clinical sciences, divided the health professions from each other during most aspects of training and generated an expected sequence of educational experiences for students. These parameters create a box. If problems fall within the limits of the box they can be solved by the extremely sophisticated resources of the current system's paradigm. If they fall outside of the box, as will many of the problems now and in the next century, we will not have the capacity to recognize the problem, adequately analyze it, or bring the appropriate resources together to develop a solution.

Just as Flexner identified a model and helped us get out of an ill-fitting box at the turn of the century, the health professional schools must now entertain a new vision of what they should be. This vision must include a richer array of academic disciplines, a more interactive relationship with the community and public, a more integrated connection to the practice side of the profession, a greater openness to education and work across the health professions and a greater willingness to experiment with alternative structures for organizing the work of education, research and patient care.

Distinctive Missions

During the past 40 years most health professional schools have developed in a relatively resource-rich environment. This has encouraged them to develop broad programs for a multitude of purposes. Relative affluence has also allowed these health professional schools to become more independent of the particular public that they served and more responsive to national issues and trends. As a result, the distinctiveness of individual institutional missions has been diminished.

Missions are those statements by organizations that identify distinctive activities as well as groups of individuals the activities are meant to serve. These activities and target populations serve to separate organizations from each other and to foster a sense of identity. Without a strong sense of mission, organizations do not know precisely which of the literally thousands of opportunities that exist in the environment should be pursued by the organization or individuals within the organization. Mission becomes a way an organization understands itself in a world of competitors and hostile forces.

Without clear and distinctive statements of institutional mission, health professional schools will find it difficult to bring about long term change. Clarity of mission helps provide the vision for the creation of new types of schools and directs the full force of the institutional resources to address those concerns. Creating such a mission and aligning it with the interests and skills of a professional school or college, as well as the needs of the communities it serves, will be a major leadership challenge.

Form and Function

Beginning before the turn of the century, the American university started to organize itself into what we now recognize as the academic disciplines and their corresponding organizational structure of academic departments. These departments were created on the notion that specialized knowledge, which could be advanced through a collection of highly trained technical experts, was the way that the disciplines advanced themselves. Within the health sciences, these departments grew during the twentieth century by contributing to the expanding knowledge base through highly specialized research in basic and clinical disciplines. One of the great success stories of the twentieth century is the legacy that such an organization has created in the biomedical sciences.

Regardless of the success of this organizational model, it must be reexamined in light of the current and future changes in health care. What was once very successful may need modification to meet tomorrow's problems. It is increasingly apparent that in addition to the highly specialized analytical information that has been so characteristic of the health professional

disciplines, there are also questions and concerns that require integrative and synthetic approaches across a multitude of disciplines and professions.

Simply breaking down the existing boundaries is not enough, nor is it always appropriate. In creating a new model for health professional education, the more challenging task is to keep all that is valuable within the departmental and disciplinary orientation and simultaneously develop a new model that permits new ways of organizing people, knowledge, research and patient care. Health professional schools must begin the work of articulating their models if they are to remain capable of responding to problems that face the nation's health care system.

Resources for Change

Paying for an innovation or change is always one of the challenges that any change agent must confront. In business the issue is whether internal resources might be shifted from one current activity to a new, more economically productive activity. If that is not feasible, then the solution is to go outside to raise the appropriate capital on the prospect of return. However, health professional education is organized somewhat differently. There has been a close relationship between institutional and governmental resources and the education of workers for the health care system. Within the lifetime of most of the individuals currently working in health professional schools, a complex array of support from states and the federal government, patient care and research has provided massive support for the educational mission of the schools. When an institution ponders the possibility of change or reform, a crucial first question is who will pay for such a change?

If some agency or program were willing and able to provide the money for innovation in the health professional schools, then cost would not be a challenge to change. However, the economic reality of education and health care is that there will be fewer new resources made available to the educational enterprise in the future. Schools faced with static or declining resource bases from traditional sources will need to find ways of reallocating their resource base to meet the emerging problems and support new programs. This will require more creativity and a willingness to break with traditional norms to cultivate resources for change.

Regulation

Economists and policy experts point to a number of instances in which over-regulation has contributed to the lack of responsiveness of particular social or economic institutions. The current savings and loan crisis speaks to the downside of under-regulation. In the complex world in which we live, regulation must be clearly focused by agreed-upon goals and must be implemented in a way that ensures the achievement of those goals.

The health professional schools are regulated primarily by two distinct but related processes: accreditation and licensure. Both of these controlling functions appeared in the late nineteenth and early twentieth centuries as a means of raising standards within the health professions and protecting the public. Their legacy is one of improved academic programs and enhanced skills among the health care practitioners who serve the public.

As important as this work has been, accreditation and licensure often impede change within the health professional schools rather than

encourage change. This is not to say that either process should be discontinued. Rather, just as health professional schools must take a broad look at what they are about, the accrediting and licensing processes must also think anew about their goals and the best way to achieve them. The Pew Commission hopes that institutions of health professional education and institutions of regulation and control will think through those changes together.

Improvement of Effectiveness

A major challenge to change within health professional education is its current limited ability to define educational outcomes and measure progress toward achieving them. Without such definitions and measures the educational process is not likely to meet the broad objectives set for it. Worse, the failure may not be recognized. The continuous improvement of quality in higher education depends upon more effective ways of evaluating education. Few campuses have taken the time to develop or direct the effort of their faculty toward new assessments that are helpful to both the long-term evaluation of research and teaching missions and the short-term evaluation of funded programs or classroom services. In part, evaluation has suffered due to resistance to earlier approaches influenced by production line measures of efficiency such as numbers of courses delivered to numbers of students per full-time-equivalent faculty member. Hence, educational institutions may have been reluctant to ask more substantive questions of students, alumni, employers and clients about how to continuously improve the product. It is disquieting to realize that most research institutions in the health sciences fail to apply the same creative rigor to questions of educational problem solving that are applied to problem solving in their laboratories.

There are, of course, very general measures of quality and standards of practice such as curricular guidelines and national board examination scores. However, this kind of evaluation does little to inform individual faculty members and particular parts of educational programs about the impact of their contributions toward the goals of the program and the activities of graduates in practice. Outcome evaluations, and the effect of the educational program on those outcomes must become the norm.

Reward Structures

Organizations can achieve temporary change by leaders' exhortations, the short-term response to emergency situations or the innovations of a particularly energetic individual. However, organizations will change permanently only if the reward systems within the organization begin to differentially recognize those behaviors or those attitudes that serve the agenda for change.

The current reward system within the health professional education world is based on performance in research and to a lesser extent patient care. While there is great rhetorical recognition of the values of teaching and education, there is very little that is actually done to reward contributions in this arena. Even more daunting is the fact that when teaching and educational contributions are recognized, they have rarely been measured with the same objective criteria used for research and clinical activity. Until contributions to education are measured and are rewarded appropriately, interest in educational reform will be sporadic at best.

Academic Individualism

In the business community there are strong incentives for developing and pursuing an unified organizational mission. The identity, work and rewards of the principal actors within the organization are all tied to the mission. If the actors are not committed to the mission, a business organization quickly finds itself no longer in existence. In contrast, the public nature of our institutions of higher education permits a different, perhaps broader, set of values to be held by the principal incumbents – the faculty – within the institution. This broader set of values is also a major challenge to change.

Within the university, the allegiance of the professor is usually more strongly aligned with a professional discipline or department than with the central mission of the university academic community. Specialization and the success that is derived from it has only contributed to this identity problem. Work itself is organized into departmental structures, and rewards are passed down through these departments for work that is again more specialized in its orientation. Both the institutional value of academic freedom and the general independence of the scholarly life that permits an objective pursuit of knowledge pull the faculty away from the cohesive forces of university mission and definition toward their own individualistic aims as researchers, scholars and clinicians. Coordinated institutional reform will require a greater sense of shared institutional purpose.

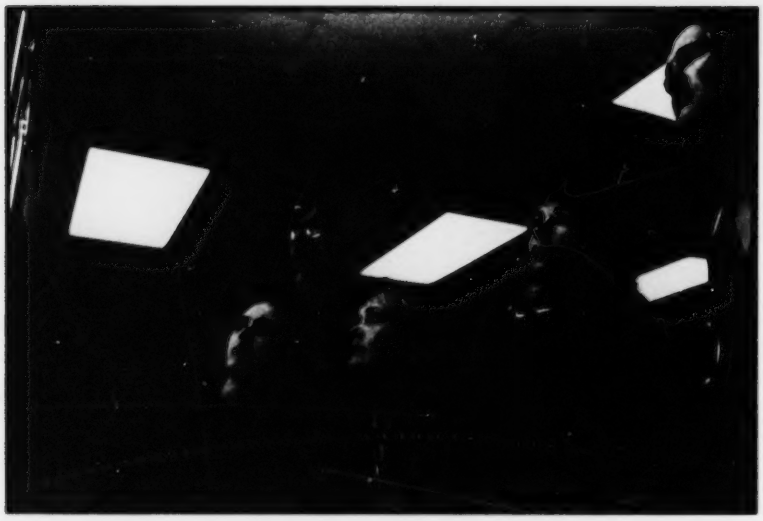
Professional Boundaries

While the carefully defined boundaries for the various health professions have improved professional accountability, they have also limited interprofessional contacts. Although the care delivery system would benefit from professionals who are capable of relating to other professionals through team efforts, there is little encouragement from accreditation, licensure or the professions to support inter-professional educational experiences. As a result, individual professional curricula tend to be

isolated. Support for integrating portions of different educational programs to meet the changing health care needs of the public is even more remote. Obviously, these systems of control are also not likely to encourage the creation of new health professionals who, while needed by the public, might infringe upon the perceived prerogatives of their colleagues and existing health professional groups.

University Governance

A lack of clarity of mission within the parent university or college in which most health professional programs exist also presents a challenge to change. Without strategic direction from a central body, health professional schools either have to guess about strategic directions or, more likely, drift along without an appropriate vision. This situation seems more endemic in the health professional schools than among the rest of the university's campus. The causes for the situation include a central administration that does not feel the need for a structure of component mission statements linked to a clearly delineated university mission, and the imbalances in resources and political clout collected in health professional schools. The problem emerged with large independent revenue streams and academic programs in growing health professional schools that had little or no relationship to the university's undergraduate and graduate programs. Left to their own devices, health professional schools have created bastions of power removed from the central mission of the university.



An Agenda for Action

The Pew Commission believes that schools must play a more active leadership role both in the preparation of practitioners for 2005 and in shaping the values and direction of the entire health care system. Over the past decade each of the major health professions has been studied by a variety of impressive and influential groups. These groups have formulated a wealth of recommendations concerning change in educational processes and in curricula. But little change has occurred. The Pew Commission believes that substantial and lasting change in education requires structural change within health professional schools as well as modifications to the environment in which the schools operate.

The Agenda for Action developed by the Commission serves as a general guide for every dean of a health professional school. It outlines the issues all deans must raise with their faculties, universities, graduates and communities as schools develop their strategies for the future. Just as importantly, the Agenda for Action also identifies the actions that universities, professional associations, federal and state government and the public must take if the health professional schools are to be successful in achieving their goals.

Competencies for 2005

The goal of the Pew Commission is to assist schools and professions define the set of competencies required of practitioners in 2005. In its Agenda for Action, the Commission has established that the nation must have practitioners with expanded abilities and new attitudes to meet society's evolving health care needs. The Commission fully expects each profession and school to interpret these competencies in the context of their unique mission.

Practitioners for 2005 should:

- *Care for the Community's Health*
  Practitioners should have a broad understanding of the determinants of health such as environment, socioeconomic conditions, behavior, medical care and genetics and be able to work with others in the community to integrate a range of services and activities that promote, protect and improve health.

- *Expand Access to Effective Care*
  Practitioners should participate in efforts to ensure access to health care for individuals, families and communities and to improve the public's health.

- *Provide Contemporary Clinical Care*
  Practitioners should possess up-to-date clinical skills to meet the public's health care needs.

- *Emphasize Primary Care*
  Practitioners should be willing and able to function in new health care settings and interdisciplinary team arrangements designed to meet the primary health care needs of the public.

- *Participate in Coordinated Care*
  Practitioners should be able to work effectively as team members in organized settings that emphasize high quality cost-effective integrated services.

- *Ensure Cost-Effective and Appropriate Care*
  Practitioners should incorporate and balance cost and quality in the decision-making process.

- *Practice Prevention*
  Practitioners should emphasize primary and secondary preventive strategies for all people.

- *Involve Patients and Families in the Decision-Making Process*
  Practitioners should expect patients and their families to participate actively both in decisions regarding their personal health care and in evaluating its quality and acceptability.

- *Promote Healthy Lifestyles*
  Practitioners should help individuals, families and communities maintain and promote healthy behavior.

- *Assess and Use Technology Appropriately*
  Practitioners should understand and apply increasingly complex and often costly technology and use it appropriately.

- *Improve the Health Care System*
  Practitioners should understand the determinants and operations of the health system from a broad political, economic, social and legal perspective in order to continuously improve the operations and accountability of that system.

- *Manage Information*
  Practitioners should manage and use large volumes of scientific, technological and patient information.

- *Understand the Role of the Physical Environment*
  Practitioners should be prepared to assess, prevent and mitigate the impact of environmental hazards on the health of the population.

- *Provide Counseling on Ethical Issues*
  Practitioners should provide counseling for patients in situations where ethical issues arise, as well as participate in discussions of ethical issues in health care as they affect communities, society and the health professions.

- *Accommodate Expanded Accountability*
  Practitioners should be responsive to increasing levels of public, governmental and third party participation in and scrutiny of the shape and direction of the health care system.

- *Participate in a Racially and Culturally Diverse Society*
  Practitioners should appreciate the growing diversity of the population and the need to understand health status and health care through differing cultural values.

- *Continue to Learn*
  Practitioners should anticipate changes in health care and respond by redefining and maintaining professional competency throughout practice life.

Strategies for Change

Health professional schools are responsible for producing the practitioners for 2005 who must possess this expanded set of competencies. Meeting this responsibility will require substantial change, and achieving this change will not be easy. Change is a difficult process for individuals and for organizations. Change generates conflict, and it creates uncertainty. In health professional education, change is hampered still further by the challenges the Commission has recognized. Both internal and external arrangements act to limit the likelihood and extent of change in these institutions.

Thus, lasting and substantial change within an institution requires a coordinated, multilevel strategy with attention to both internal and external environments. An institution's incumbents must recognize the problems and have a vision of the solutions. Yet recognition and a vision alone will not lead to change. In the absence of skills in leadership, planning and communication, even the most compelling vision will remain unattained. Just as important, change will require accommodation among many players external to the institution. The Pew Commission advocates the following strategies for achieving the change needed in health professional education.

Schools Should Redefine Their Educational Core

Every health professional school should make a careful assessment of the competencies that will be demanded of its graduates. All dimensions of the professional education program including the natural, behavioral and population sciences must be reviewed within the context of this educational core. This is a major undertaking that will require careful, yet creative consideration by the faculty. While there are guidelines for such a core in every profession, the Pew Commission believes that these guidelines serve only as a beginning point for the development of each institution's distinctive curriculum. The core may affirm the traditions of the profession and institution, but these should be reinterpreted in light of the evolving needs of the public. Until a school can affirm such a core, other innovations will be difficult.

Several specific curricular issues are obvious targets for consideration during an examination of the core competencies needed by a school's graduates. These issues include, but are not limited to a consideration of the following:

- *The Disciplines Represented in the Core*
  The educational core should create in health professional students the expanded skills, knowledge and attitudes

necessary to meet the evolving health care needs of the public. Schools should identify the disciplines, courses and experiences necessary to ensure competencies that will be required in 2005.

- *The Settings in Which Clinical Education Occurs*
  Training of professionals should occur increasingly in community-based centers that emphasize prevention, maintenance of a state of health and management of chronic diseases, as well as the patient's broader health needs.

- *The Teaching-Learning Process*
  The teaching-learning process should promote inquiry skills together with the ability to manage large volumes of information. These skills will be demanded of practitioners as the volume of information available and need for informed decisions becomes simply too great for traditional memorization strategies.

- *Health Care Teamwork*
  The educational and care delivery arrangements of schools should model the integration of health care providers, i.e., functioning in teams with a variety of other providers and managers in a wide array of settings.

- *Curricular Effectiveness*
  An ongoing assessment of curricular effectiveness should be an integral component of every school's strategy to monitor and improve program quality. Process and outcome evaluations should become commonplace.

- *Educational Flexibility*
  The educational program should offer greater flexibility to allow earlier access to professional training, inter-professional training and multi-competency training, as well as the opportunity to explore professional career options more fully.

Schools Should Restructure for the Tasks Ahead

Redefining the clinical core of the curriculum will require significant alteration in the mission, programs and structure of the nation's health professional schools. The Pew Commission believes that the following are among the more important changes to be considered by schools:

- *Institutional Mission*
  Schools should develop distinctive missions that are responsive to the changing needs of the health care system and drawn from the context of particular institutional traditions and community needs. These missions should be capable of directing institutional responses to the changing environment.

- *The Community's Health*
  Schools should assume responsibility for understanding and addressing the health care needs of particular populations, especially those in each institution's immediate vicinity.

- *Organizational Structure*
  To enact such missions, schools should reform their organizational structures. School structure should include the mechanisms to facilitate a better understanding of the changing environment, enhance the capacity for new program development, provide cost-effective programs, respond to the needs of evaluation and accountability and distribute power to enact the mission of the school.

- *Faculty*
  Schools should develop faculty who will model the knowledge, skills and attitudes of the practitioner for 2005.

- *Reward Structures*
  Schools should develop innovative reward structures that are tied to their missions.

- *Continuing Competency*
  Schools should assist in the development of comprehensive, integrated programs designed to assess and assure continued professional competency throughout health professionals' practice lives.

- *Education Costs*
  Schools should work toward providing the highest quality educational programs at the lowest possible cost to students. This will involve reconsideration of the traditional sources of institutional income and the productivity of the components of the educational process.

- *Research*
  Schools' research missions should be broadened beyond biomedical questions to include inquiry in health services and education issues.

Universities Should Foster Innovation

The transformation of the nation's health professional schools will not occur without the strong support of their parent universities. In particular, the structural changes required of these schools will demand a more complete understanding of the issues and the stakes than is usually the case. For changes to take place, universities will need to ensure the following conditions:

- *Leadership*
  University administrators should select leaders for health professional schools who are capable of forging a new vision for the health professions.

- *Skill Development*
  Universities should demand and facilitate the continued growth in leadership and organizational skills by key leaders in their health professional schools.

- *Strategic Direction*
  Universities should provide clear direction for health professional schools consistent with the mission of the university.

- *Flexibility*
  Universities should furnish the necessary flexibility in governance and administrative policy for their health professional schools to be able to respond to the changing environment.

- *Diversity*
  University administrators should recognize that different types of health professional schools are not only needed but also desirable. Administrators should not evaluate such schools on a single model or set of standards, but rather expect diversity with responsiveness to the needs of the public.

- *Professional Boundaries*
  Universities should encourage programmatic efforts that address health and health professional educational issues across the traditional boundaries of the health professions and other disciplines within the university.

- *Accountability*
  Universities should ensure that their professional schools incorporate community needs into their strategic plans, and hold these schools responsible for responding to those needs.

- *Integration*
  Universities should understand and accept the health professions as integral parts of their academic missions.

Health Professional Associations Should Facilitate Professional Redefinition

Professional associations have an intimate bond with the professional schools, but that bond has not always been an effective agent for change. To help create the environment for change needed by the health professional schools, health professional associations should play an active promotional role in:

- *Redefinition of the Professions*
  Professional associations should support the development of a professional identity drawn from the needs of patients in addition to the performance of a particular set of technical services.

- *Educational Leadership*
  Professional organizations should encourage their particular health professional schools to lead the way in redefining the professional role to meet patient needs.

- *Educational Service to the Profession*
  Professional associations should help position schools as the principal providers of new skills and knowledge to assist professionals in making life-long accommodations within the changing environment.

- *Regulation*
  Professional associations should encourage licensure and accreditation bodies to work closely with schools as they develop their responses to the changing environment.

Government Should Support Change in Health Professional Education

Both state and federal government play an important role in health care and education. Their interests are served when health professionals are redirected to serve a broader set of public needs. Many of the policy mechanisms that they control should be directed toward ensuring the successful transformation of health professional schools and their environments through:

- *Education Incentives*
  Government should design financial incentives that encourage educational innovations addressing the health of the state and nation.

- *Accreditation*
  The federal government should encourage accreditation policies that demand active school involvement in developing, measuring and promoting outcome standards of performance in education and professional practice.

- *Licensure*
  State licensure regulations should be explored as possible avenues for addressing issues of continued competency and reinforcement of innovations in the educational core. Licensing arrangements should be able to accommodate changes in health professionals' responsibilities.

- *Access to Care*
  Government should explore ways to ensure access to health care for individuals, families and communities.

- *Manpower Policy*
  State regulations and federal policies should create the opportunity for exploration of innovative approaches to health manpower utilization.

- *Financing Incentives*
  Government should actively encourage the development of finance and delivery policies that are consistent with the practitioner skills and values they want to promote.

The Public Should Participate in Redefining Health Care and the Role of Professionals

The public, personified as employers, individual consumers and community and special interest groups, have a growing interest and responsibility in health and health services. The goal of the Pew Commission will be facilitated by individuals and public groups taking a more direct, active interest in the nation's health care arrangements. This involvement will be most helpful if it is pursued through the following actions:

- *Demand for Responsive Providers*
  The public and its representatives should insist upon health professionals who are prepared to serve the evolving health care needs of the public.

- *Guidance in the Use of Health Resources*
  The public should actively debate the principal health care issues of the times, such as appropriate use of technology, access to care and the beginning and ending of life.
- *Consumer Involvement*
  The individual health consumer should become increasingly informed and adopt a more critical attitude in decisions regarding purchases of personal health care services.
- *Support for Health Promotion*
  The public should embrace the wellness philosophy in both personal lifestyles and through private and public health promotion initiatives.

During the life of the Pew Health Professions Commission these recommendations will serve as the defining parameters for institutional change across the health professions. Advisory panels for allied health, dentistry, health management, medicine, nursing, pharmacy, public health and vet-

erinary medicine will develop detailed recommendations and implementation strategies specific to their educational arrangements, which will then be reviewed, and as appropriate, promulgated by the Commission.

The Pew Commission will develop and disseminate detailed recommendations for policy to support the Agenda for Action for professional associations, universities, state and federal government and consumer groups. The agenda will also direct the Pew Commission as it pursues its work as a catalyst for change in the health professional schools. From this agenda, a broad initiative of research, demonstration, communication and advocacy will unfold. The Agenda for Action will evolve as the health care system and education anticipate and respond to the changing world. Thus, this agenda for change is not the final word, but the beginning of a decade long commitment to change.

Appendix A: Health Care Issues and Trends

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Demography

Overview

Preparing for future health care needs in the U.S. requires a thorough understanding of the demographic characteristics of the population. Major demographic trends and prevailing attributes of the population will influence the health services required, the prevalent diseases and the risk of exposure for subpopulations.

The population of the U.S. has grown by nearly 56 million over the last 25 years. While it is projected to increase by another 56 million by the year 2038, beyond 2038, the population is expected to decline (U.S. Bureau of the Census, 1989). The fall in growth rate will result from a narrowing of the difference between the crude birth rate (CBR) and the crude death rate (CDR). There will be little change in the rate of net migration between 1987–2080 (U.S. Bureau of the Census, 1989). While the growth rate of the population will stabilize, other factors will contribute to changing the nature of the American demographic profile. Five demographic trends seem to be the most important.

Trends

1. Aging Population
2. Baby Boom Generation
3. Declining Younger Population
4. Racial and Ethnic Diversity
5. Changes in the Family Unit

Trend 1: Aging Population

Perhaps the most striking trend is the overall aging of the U.S. population. As shown in Figure 1, the median age of the population in 1987 was at an all-time high of 32.1 years. Even so, the U.S. Bureau of the Census projects it will never again be as low (U.S. Bureau of the Census, 1989). As shown (Fig. 2) by the population pyramids for 1960 and 1990 (U.S. Bureau of the Census, 1989), the age pyramid has been rather "bottom heavy" with the largest proportion of the population between ages 25-34. By the year 2000, however, the very large baby boom cohort will be over age 35 and will push up the median age. Beyond 2010, the baby boom cohort will not have as large an effect on the population distribution; as a result, the median age will rise more slowly thereafter.

FIG.1

Median Age: 1960 to 2030
(As of July 1. Includes Armed Forces Overseas.)

Year	Lowest Series	Middle Series	Highest Series
Estimates:			
1960	(X)	29.4	(X)
1965	(X)	28.1	(X)
1970	(X)	27.9	(X)
1975	(X)	28.7	(X)
1980	(X)	31.5	(X)
1985	(X)	31.5	(X)
1987	(X)	32.1	(X)
Projections:			
1990	33.1	33.0	32.9
1995	35.0	34.7	34.4
2000	36.8	36.4	35.8
2005	38.5	37.8	36.9
2010	39.9	38.9	37.5
2020	41.9	40.2	38.0
2030	44.2	41.8	38.6

(X) Not applicable.

Source: U.S. Bureau of the Census, CPR, p.4

Thirty million Americans were aged 65+ in 1987, a number expected to increase by four million by 1995. Due to the small birth cohorts of the Depression era who will then be reaching their mid-60s, the aged 65+ group will increase by only 2.5 million between 1995-2005. After 2010, however, it will grow rapidly to 52 million in 2020 and to 65.6 million in 2030 as the members of the baby boom cohort reach age 65 (U.S. Bureau of the Census, 1989). The proportion of the total population composed of those over age 64 is expected to increase from 12.2 percent in 1987 to 13 percent in 2000 and to 21.8 percent by 2030. Beyond 2030, it will increase more slowly growing to 24.5 percent of the total U.S. population by 2050 (U.S. Bureau of the Census, 1989). Just as the overall U.S. population is aging, the elderly are aging (U.S. Bureau of the Census, 1989). While 9.6 percent of the elderly population was over age 85 in 1987, this percentage will grow steadily to 15.5 percent in 2010 and will then drop back to lower levels until after 2030 (12 percent). By 2050, when the baby boom cohort reaches age 85, it will again increase (13 percent).

Trend 2: Baby Boom Generation

The generation of Americans born between 1946 and 1964 reversed a downward trend in the fertility rate that had existed since the nation's founding (Fig. 2). The "baby boomers" represented a 30 percent increase in the fertility rate and added about 1.5 million "excess" individuals in each year of the boom. By 1964 the fertility rate had returned to where it had been in the early 40s and from there continued its decline. (Fig. 2)

Such large and dramatic changes in the rate of fertility have strained various parts of the social structure. As the baby boomer generation matured, it taxed the pediatric, early childhood and public education system in the 50s. In the 60s, it changed higher education, created a "counter culture" and both fought and protested a foreign war. In the 70s and 80s it strained the capacity of the economy to create jobs and generated a 15-year boom in the real estate market.

As the baby boomers settle into middle age, they are starting their own families and producing a baby boom echo. They are changing recreation habits from high impact activities to golfing and gardening and they are moving into the years when they will begin to consume more health services. As one of the best educated generations of Americans they will be more prevention oriented, but the care they seek will push demands in the health sector for the next 50 years.

Health professionals who graduate over the next 10 years will spend most of their practice lives caring for this generation. Much of the nation's health care resources will be measured against the long-term care needs of this generation.

Trend 3: Declining Younger Population

The population under age five is projected to increase slightly from its 1987 level of 18.3 million to 18.4 million in 1990. Beyond that, it will shrink to 16.9 million in 2000 and then remain around 16 to 17 million until 2050 (U.S. Bureau of the Census, 1989). The

elementary school population (ages 5 to 13) will be almost three million larger in number in 1995 than it was in 1987, but beyond 1995, it is expected to decline to about 32 million in 2005 and fluctuate from 30 to 32 million thereafter. The high school population (ages 14 to 17) is projected to decline from 14.5 in 1987 to 13.2 million by 1990 (U.S. Bureau of the Census, 1989). From 1995 to 2010, this group should rebound to its 1987 size and remain as large through the period. The college-aged population (ages 18 to 24) which has been declining since 1980 is expected to decline further by three million by 1995. It is expected to rebound somewhat between 2000 and 2010, but it will never be as large as it is now (U.S. Bureau of the Census, 1989). A similar pattern will emerge for age groups 25 to 34 through 45 to 64. Each group will first increase as baby boomers move through each age category, then decline sharply with the new, smaller birth cohorts of the 1970s.

Trend 4: Racial and Ethnic Diversity

America has always understood itself to be a great melting pot of people and cultures. While this view is as much myth as reality, America has absorbed several waves of new immigrants. Each wave seemed to accept the prevailing patterns of language, policies and employment and to progress in realizing the American dream. Two groups growing in importance now exist to challenge this assumption across America.

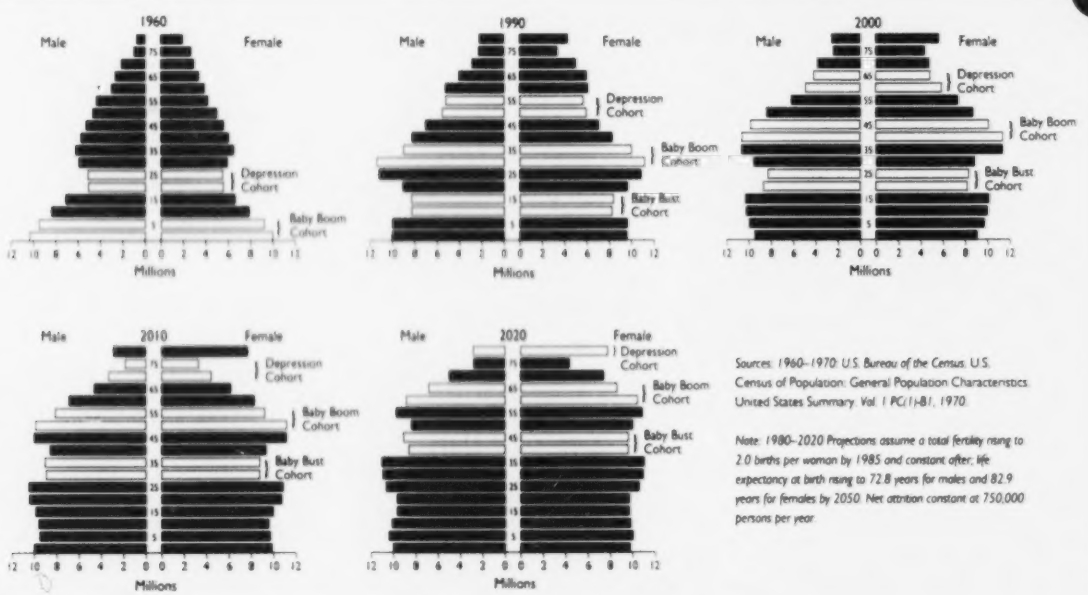
Many African-Americans in the U.S. remain outside of the mainstream. Opportunities for education, employment, health care and long life are significantly different for African-Americans than for the predominant European-Americans. There has been considerable discussion over the past decade of the emergence of a permanent underclass. Much of this analysis has been focused on the reality of life chances for a major part of the African-American population. Fertility rates for African-Americans are higher than for the European-American population (2.3 to 1.7 in 1980) and African-Americans will grow as a percentage of the population from 11.8 percent in 1980 to 13.2 percent in 2005 (Oxford Analytica).

In 1980 the Hispanic-American population was roughly one-half of the total African-American population in the U.S. By 2005 the populations will be virtually equal in size and together will represent 26 percent of the U.S. population. This increase will be driven by a fertility rate of 2.5 and annual immigration of approximately 400,000.

For somewhat different reasons than for African-Americans, the Hispanic-American population also is not following a traditional pattern of societal integration. Language, geographic concentration, cultural differences, religion and a maturing U.S. economy all limit the ability and willingness of the Hispanic-

Progress of Depression Cohort, Baby Boom Cohort, Baby Bust Cohort Through U.S. Population Age-Sex 1960–2020

FIG.2



Sources: 1960–1970: U.S. Bureau of the Census. U.S. Census of Population: General Population Characteristics. United States Summary. Vol. 1 PC(1)-B1. 1970.

Note: 1980–2020 Projections assume a total fertility rising to 2.0 births per woman by 1985 and constant after; life expectancy at birth rising to 72.8 years for males and 82.9 years for females by 2050. Net attrition constant at 750,000 persons per year.

American population to merge into the dominant culture. In addition, early immigrant groups accepted an ethic that valued integration. Clearly, there are now powerful forces for sustaining the distinctiveness of language and culture.

While other ethnic groups will grow over the next 15 years, their impact will not be as significant as the African-American and Hispanic-American populations. Regional differences for all racial and ethnic populations will be even more significant than their aggregate numbers would indicate. California, Texas, Florida and New York will all experience faster rates of diversification of the population and, in the case of California, also experience significant increases in Asian-Americans.

For the health care system, the ramifications of growth in the African-American and Hispanic-American populations will be profound. These two parts of the U.S. population are currently underserved and growth will mean an even more significant problem. These populations are underrepresented in all the health professions, which limits understanding of health concerns in the broader cultural context. As the African-American and Hispanic-American populations represent the youngest part of the population, they will be the candidates for admission to many of the health professional education programs and represent a larger share of the entry-level labor market.

Trend 5: Changes in the Family Unit

The last two decades have produced a remarkable change in the demography of the family. Although as a culture we continue to identify with the traditional intact family of two married adults with children, this no longer represents most family structures (Waite, 1986; Preston, 1984; Davis, 1985). Considering both mortality and divorce rates, there is a 50 percent chance that married partners will not be together for a twenty-fifth anniversary. There is a one-in-three chance that American children will spend at least part of their lives in one-parent households and that chance increases to two-in-three for African-American children. Another dimension of this changing family pattern is more women in the labor force. In 1950 the labor force participation rate for women was 23.8 percent and by 1985 it had grown to 54.3 percent. While this change is striking it does not capture fully the scope of entry into the work force by younger women. The number of married mothers who have a five-year-old child and who are in the work force grew from 44.4 percent in 1975 to 63.6 percent in 1988 (Oxford Analytica). Most American households have maintained their economic status over the past two decades with the second paychecks from women in the work force.

This change in the family will force a redefinition of health care delivery as well. The traditional locations and hours of care provision will change to accommodate the needs of such a large consumer population. As the nature of families change so will their health needs, from a concern with a more traditional set of medical problems to one focusing also on emotional health and well-being.

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Economics

Overview

The U.S. economy continues to undergo substantial modification. The economy has shifted from a manufacturing to service focus and has lost much of its preeminence among countries of the world. We have become a debtor nation and we continue to operate on deficit federal budgets annually. At all levels of government there is growing competition for a fixed set of resources. At the individual consumer level there is growing disparity between the haves and the have nots.

Health care costs now comprise about one-eighth of the nation's productive effort. Any effort to alter the shape, size or direction of health care in the U.S. must recognize that it is a major part of the nation's economy. Change within health care and the education of the health professions must be carried out within the context of the broader evolution of the national and world economies. Access to health care in the U.S. is in part determined by affluence. There is a growing disparity between those with the most and least life chances.

Trends

1. Post-Industrial U.S. Economy
2. Tighter Public Budgets
3. Disparity Between the Rich and Poor

Trend 1: Post-Industrial U.S. Economy

One of the major developments in the U.S. economy during the twentieth century has been the growing dominance of U.S. manufacturing in the world economy followed by the slow but steady shift into being one among several economic superpowers. A second shift has occurred throughout the century with the gradual movement from a manufacturing dominated economy to one which is primarily oriented toward the service sector (Fig. 1). These factors will continue to play important roles in defining the character of the economy over the next 15 years.

Following the second World War, the United States' share of world manufacturing production rose to an all time high level of almost 45 percent. The period ushered in two decades of U.S. dominance in the world markets and an unusually high level of affluence at home. By 1980 the level of U.S. production had fallen to 30 percent, about at its pre-war level, where it continues to hold steady (Fig. 2). While the previous generation of U.S. business leaders has grown up in a period of U.S. hegemony in world markets, it seems apparent that the future holds a different pattern of an integrated world market with a number of competitors. This means the American economy and society cannot afford the isolation possible before the war or expect the dominance experienced in the three decades that followed. As health care costs grow as a proportion of the total economy they will either replace spending on other items in the economy or serve to make parts of the U.S. less competitive internationally. Figure 3 presents the stark contrast of U.S. per capita health expenditures compared to other OECD nations.

FIG.1

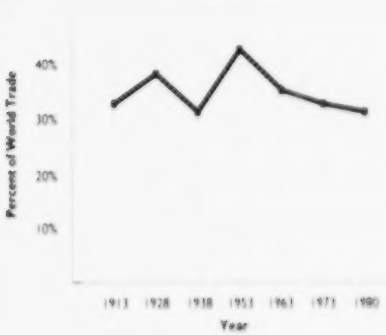
Shares of Employment and New Jobs Created, 1950 – 1985

	Shares in 1950 (%)	New Jobs 1950–60 (millions)	Shares in 1960 (%)	New Jobs 1960–70 (millions)	Shares in 1970 (%)	New Jobs 1970–80 (millions)	Shares in 1980 (%)	New Jobs 1980–85 (millions)	Shares in 1985 (%)
Total	100.0	+8.2	100.0	+12.7	100.0	+20.0	100.0	N.A.	100.0
Agriculture, forestry, fishing	12.7	-2.7	7.0	-1.7	3.7	+0.8	3.6	-0.3	3.0
Mining, Construction, Manufacturing	32.4	+2.9	35.5	+1.7	32.7	+4.9	28.6	+0.3	26.8
Services	53.1	+6.2	57.5	+10.5	63.6	+14.3	67.8	+8.7	69.0
(Industry unknown)	(1.5)	+1.4	(4.0)	+2.2	(6.2)	0.0	(0.0)	+1.3	(1.2)

Source: Bureau of Labor Statistics, 1986

FIG.2

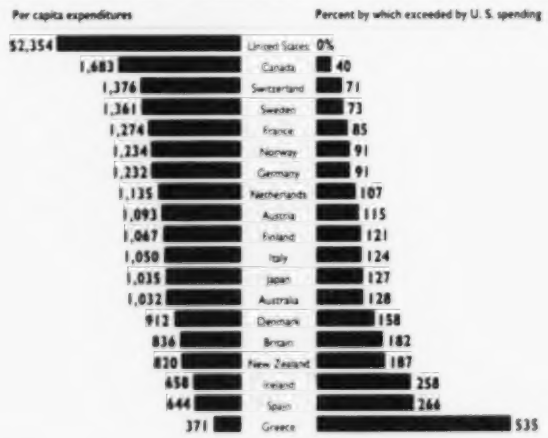
American Share of World Manufacturing Production, 1913–1980



Source: Bairoch, P. Journal of European Economic History, 1982

FIG.3

Per Capita Expenditures of OECD Nations



Source: Schieber, G. and Poullier, JP. Health Affairs, Spring 1991

Trend 2: Tighter Public Budgets

One of the most important issues defining health and education in the future is the condition of the U.S. economy. The 30 years following World War II witnessed unparalleled growth in the gross national product and disposable personal income. As America was rebuilding the world it was also benefiting from being the primary supplier to the reconstruction. The corresponding increase in wealth afforded the opportunity to increase the amount spent per capita on health services and increase the number of people covered by private health insurance. It also created public budgets that encouraged the support of education and health care. While America's competitiveness in the world economy and domestic productivity have changed over the past 20 years, the nation's patterns of consumption have not. Today the nation struggles with an annual federal budget deficit of $127 billion that is projected to remain constant for the foreseeable future (Fig. 4). This coupled with a growing international trade deficit will create a haunting economic landscape for the future (Fig. 5).

Tighter federal budgets have put an inevitable strain on state budgets. Although many states are required by law to balance their budgets, state indebtedness is approaching $10 billion. Combined with local indebtedness this burden is approaching $30 billion annually (Fig. 6). These deficits are in part a function of the general economic recession. They also represent a fundamental realignment of the relationship between federal, state and local finance of social programs and the end of a long period of American affluence. Deficits of this nature and size will have an impact on health care delivery and higher education now and in the foreseeable future. The rising cost of education will raise more hurdles to potential students considering health care careers. Having fewer resources at the national level will constrain support for education and health care.

FIG.4 **Congressional Budget Office Projections of Current Services Deficit, Fiscal Years 1990–95**

ITEM	1990	1991	1992	1993	1994	1995
Outlays	1,194	1,271	1,345	1,425	1,488	1,557
Revenues	1,067	1,137	1,204	1,277	1,355	1,438
Deficit	127	134	141	148	133	119

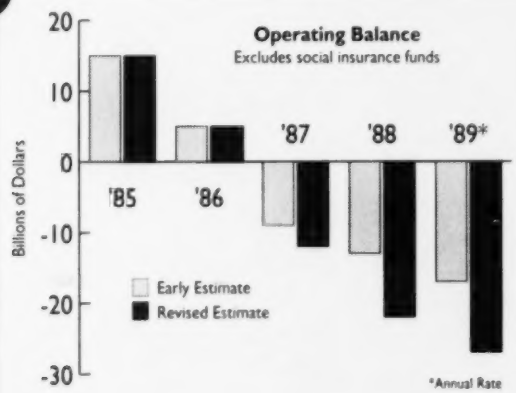
Source: Congressional Budget Office, An Analysis of the President's Budgetary Proposals for Fiscal Year 1991, March 1990.

FIG.5 **Current Account Balance, U.S., in Billions Current U.S. $**

1975	1980	1983	1984	1985	1986	1987
18.06	1.84	-46.28	-107.09	-116.43	-138.84	-153.95

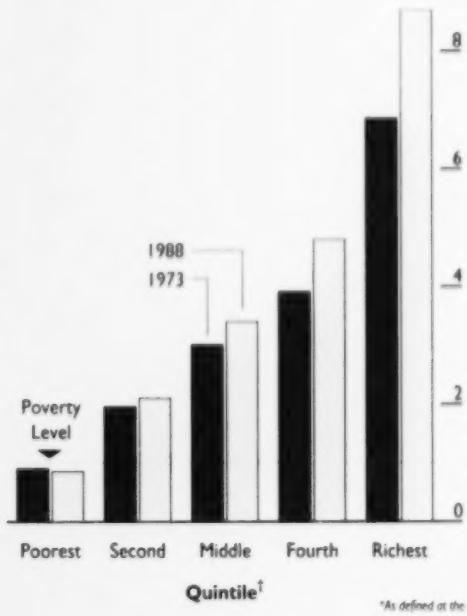
Source: World Tables, 1988–89, World Bank

FIG.6 **State and Local Deficits**



Source: Commerce Department in Koretz, 1989

FIG.7 **Family Income as a Multiple of "Poverty" Level***



Source: House Ways and Means Committee, in The Economist, 1990

Trend 3: Disparity Between the Rich and Poor

At the individual level, the economy is producing a greater disparity between wealth and poverty. In 1978 there were 24.5 million individuals or 11.4 percent of the population below the federally-established poverty line. By 1989 the number had climbed to 31.5 million representing 12.8 percent of the population. Simultaneously, the disparity between those with the fewest life chances and those with the most grew considerably. During the same period, the poorest 20 percent of the American population became eight percent poorer and the richest 20 percent became 13 percent richer. The richest 20 percent had 40 percent of the nation's income while the poorest 20 percent had less then five percent. Between 1979 and 1989 mean income for the most affluent five percent of families rose from $120,253 to $149,438. The poorest 20 percent of families saw their income drop during the same period from $9,990 to $9,431 (New York Times, 5/19/91). Figure 7 presents the shift of family income in quintiles between 1973 and 1988. Disparity of wealth of this sort will inevitably impact the nation's health.

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Epidemiology

Overview

The epidemiologic history of the United States in the twentieth century can be divided into three eras distinguished by changing disease patterns. The first, an outgrowth of the germ theory of the late 1800s, was characterized by the use of personal hygiene and sanitary measures to quell the great epidemics of infectious disease. The second, derived from the widespread use of antibiotics after World War II and the development of modern therapeutics and biotechnology, has resulted in the successful treatment of many acute infectious diseases. The third, current stage is marked by increases in chronic, degenerative diseases of life-style and aging.

Other epidemiological trends have evolved as well. The HIV epidemic continues to exact an enormous toll throughout the country. We have been unsuccessful in meeting many of our health goals related to infant mortality and prenatal care. Furthermore, there is an emerging realization of the powerful effect that many environmental factors have in the disease process. Seven epidemiological trends seem to be the most important.

Trends

1. Diseases of Aging
2. Diseases of Life-Style and Behavior
3. Diseases and Technology
4. AIDS Epidemic
5. Infant Mortality
6. Enhanced Understanding of Diseases
7. Environmental Factors

Trend 1: Diseases of Aging

Cardiovascular

Although mortality from cardiovascular disease has declined 39 percent since 1964 (U.S. Public Health Service, 1988), cardiovascular disease, including heart disease and stroke, is still the most common cause of death in the U.S. Control of established risk factors, including cigarette smoking, blood pressure, cholesterol, diabetes and obesity is thought to account for the improvement; nevertheless, cardiovascular disease is expected to remain a major disease of aging well into the twenty-first century.

Cancer

There has been a steady increase in the age-adjusted incidence and national death rate of all forms of cancer in the U.S. About 30 percent of Americans now living will develop cancer (American Cancer Society, 1989). In 1930 the death rate per 100,000 population was 143; by 1976 it had risen to 171 (U.S. Public Health Service, 1988). Most of this increase is attributed to lung cancer.

Diabetes

Noninsulin-dependent diabetes mellitus is the most common form of diabetes, primarily affecting adults. Exacerbated by obesity and age, it is controlled by proper diet and medication. Its incidence per 100,000 in the U.S. has increased from 3.8 in 1935 to 22.7 in 1981. Currently, diabetes afflicts at least 10 percent of the population over age 65 (National Center for Health Statistics, 1985).

Osteoarthritis

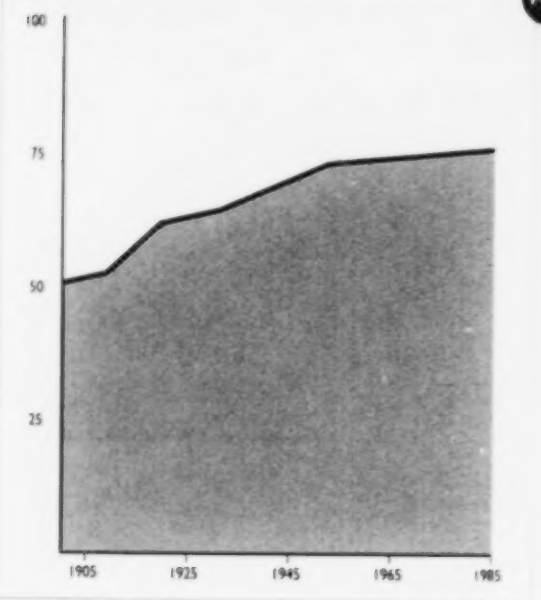
Osteoarthritis, a progressive degenerative condition affecting the large joints, is common in advancing age. According to the 1982 NHIS survey, 13.3 percent of Americans reported having this disease; the prevalence in the 65+ age group was approximately 50 percent (MMWR, Feb. 16, 1990). Heredity, mechanical stress and obesity are risk factors for osteoarthritis. Present treatment includes medication and replacement of diseased joints.

Cognitive Impairment

Cognitive impairment in the elderly, including Alzheimer's disease, affects approximately 1.6 million Americans today. Because of the aging of our population, this number is expected to reach 2.3 million by the year 2000 (MMWR, Feb. 23, 1990). There is no known cure. Long-term custodial care is the only therapy available now.

Life Expectancy in the United States 1900-1985

FIG. 1



Source: USPHS, 1988

Advancing Age

Advancing age is a time of markedly increased fragility and, therefore, susceptibility to a number of other acute (e.g., falls, infections) and chronic (e.g., emphysema, cirrhosis) diseases. While most of these diseases are preventable or manageable among the young, they are a major cause of morbidity and death among the old. Presently, preventive measures appear to be the primary solution.

Trend 2: Diseases of Life-Style and Behavior

Obesity

According to NHANES surveys over the past 30 years, age-adjusted obesity in the adult U.S. population has increased from 20 percent in 1960 to 26.2 percent in 1980 (Health United States-1989, 1990), divided equally among men and women. Obesity is considered to be a strong risk factor for cardiovascular disease, hypertension, osteoarthritis, diabetes and other diseases. Preventive measures include improved dietary habits and increased caloric expenditure via exercise.

Trauma

Violent crimes are the eleventh leading cause of death in the U.S. (MMWR, March 30, 1990). The age-adjusted homicide rate in the U.S. in 1987 was 8.6 per

100,000. Homicides are disproportionately high among males, among African-American, Hispanic-American and low-income populations (U.S. Public Health Service, 1988). At this time homicides are the leading cause of death in the U.S. for African-American males aged 15 to 44 (Health United States-1989, 1990). Suicide was the eighth leading cause of death in the U.S. in 1987, with an age-adjusted rate of 11.7 per 100,000 (MMWR, March 30, 1990). The rate for all males was 18.2; for females, 5.2 per 100,000. Between 1960 and 1983 the suicide rate for African-American males increased 32.3 percent compared to an increase of nine percent for the general population. Only approximately one in nine suicide attempts is successful (U.S. Public Health Service, 1988).

Accidents of all types rank first as a cause of death for every U.S. age group between one and 45 (Health United States-1989, 1990). They include incidents such as motor vehicle accidents, falls, fires, drownings and accidental death due to firearms. Attempts to change community standards regarding the mandatory use of seat belts, moderation in alcohol use and firearms control have been met with public ambivalence and, therefore, with mixed results.

Substance Abuse

The use of addictive drugs, both legal and illegal, is implicated in a wide range of health and social problems ranging from accidents and homicides to heart disease and cancer. Cigarette use declined in the U.S. between 1979 and 1987 from 33.5 percent of the population to 28.8 percent (Health United States-1989, 1990); however, the decline was much greater among highly educated persons. Nevertheless, the smoking rate continues to rise among young women. Cocaine use appears to be decreasing among

Age-Adjusted Death Rates* for 1987 and Percent Changes in Age-Adjusted Death Rates for the 15 Leading Causes of Death from 1986 to 1987 and 1979 to 1987–United States

FIG.2

Rank†	Cause of Death	Age-Adjusted Death Rate for 1987	% Change 1986-1987	% Change 1979-1987
1	Diseases of the heart (390-398, 402, 404-429)	169.6	-3.1	-15.0
2	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues (140-208)	132.9	-.02	1.6
3	Cerebrovascular disease (430-438)	30.3	-2.3	-27.2
4	Accidents and adverse effects§ (E800-E949)	34.6	-1.7	-19.3
	Motor vehicle accidents (E810-E825)	19.5	0.5	-15.9
	All other accidents and adverse effects (E800-E807, E826-E949)	15.2	-3.2	-22.4
5	Chronic obstructive pulmonary disease and allied conditions (490-496)	18.7	-0.5	28.1
6	Pneumonia and influenza (480-487)	13.1	-3.0	17.0
7	Diabetes mellitus (250)	9.8	2.1	-
8	Suicide (E950-E959)	11.7	-1.7	-
9	Chronic liver disease and cirrhosis (571)	9.1	-1.1	-24.2
10	Atherosclerosis (440)	3.6	-2.7	-36.8
11	Nephritis, nephrotic syndrome, and nephrosis (580-589)	4.8	-2.0	11.6
12	Homicide and legal intervention (E960-E978)	8.6	-4.4	-15.7
13	Septicemia (038)	4.5	4.7	95.7
14	Certain conditions originating in the perinatal period¶ (760-779)	-	-2.2	-28.9
15	Human immunodeficiency virus infection (new code: 042-044)	5.5	-	-
	All causes	**535.5**	**-1.1**	**-7.2**

*Per 100,000 population, age-adjusted to 1940 U.S. population.
†Based on number of deaths.
§When a death occurs under "accidental" circumstances, the preferred term within the public health community is "unintentional injury."
¶Based on infant mortality rates.

Source: MMWR, March 30, 1990

teenagers, but cocaine-related emergency room visits among youths have quadrupled from 1985 to 1988, primarily due to more dangerous forms and routes of administration of the drug (Health United States-1989, 1990). Alcohol consumption rates also have been declining slowly. Between 1981 and 1987 the per-capita consumption of alcohol decreased from 2.76 gallons of absolute alcohol to 2.54 gallons (Health United States-1989, 1990).

Sexually Transmitted Diseases (STDs)

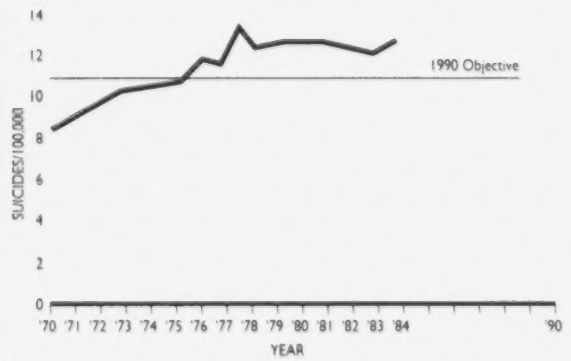
Over the past several decades the incidence of the traditional STDs, such as gonorrhea and syphilis, has generally declined. However, antimicrobial resistant strains of both diseases have appeared in recent years. There has been a recent increase in primary and congenital syphilis in low-income, inner-city minority, heterosexual populations associated with the exchange of sexual services for drugs, especially crack cocaine (Health United States-1989, 1990). In addition, the scope of the STD problem has expanded to include genital herpes, human papillomavirus (HPV) and the growing AIDS epidemic.

Percent Change in Suicide Rates for Persons 15-24 Years of Age, by Age Group, Sex, and Race, United States, 1970-1984.

FIG.3

Sex and Race	15-19 Yrs. % Change	20-24 Yrs. % Change	Total (ages 15-24 Yrs.) % Change
Male	62.5	37.4	53.0
White	69.9	44.7	60.6
Black/Other	35.2	-5.2	13.3
Female	20.7	-7.1	4.8
White	35.7	-1.8	11.9
Black/Other	-20.7	-36.4	-29.3
TOTAL	55.2	28.9	43.7

Suicide Rates for Persons Ages 15-24, by Year, United States, 1970-1984.



Source: MMWR, CDC Surveillance Summary, Feb. 1988, Vol 39 no SS-1 USDHHS, PHS, CDC, Atlanta, GA 30333

Adolescent Health

During the 1980s the proportion of total births attributed to teenage mothers decreased for all racial and ethnic groups (Health United States-1989, 1990). However, the proportion of low-birth-weight infants increased over this period, the greatest increase being among African-American infants. The suicide rate for the 15 to 24 age group remained reasonably constant between 1900 and 1955 at about one-half the rate of the U.S. population (Fig. 3). Since then incidence of suicide in this age group has increased dramatically, almost tripling by 1980. In 1984 suicide became the second leading cause of death for persons aged 15 to 24 (Rosenberg, 1987).

Occupational and Environmental Hazards

Conditions that pose serious risks to health include daily exposure to toxic chemicals, asbestos, ionizing radiation, coal dust, physical hazards and noise. In addition, lifestyle behaviors such as drug and alcohol consumption and smoking can act synergistically with these agents to produce serious illnesses.

The Homeless and Disabled

The spiral of poverty and ill health can be seen in the growing number of urban homeless, many of whom are mentally or physically disabled. Depending on the definition, disabled citizens number between 7.6 and 17.7 million (Urban Institute, 1975). At least 30 percent of the disabled who are poor, became poor due to ill health (Luft, 1978). Many homeless are also mentally ill. Determining the prevalence of mental illness and identifying groups at high risk has been difficult. Epidemiologic studies have been limited by sample size and selection bias and psychiatric diagnoses have been inconsistent. One NIMH study revealed an 18.7 percent prevalence of any mental disorder in three non-representative U.S. cities in 1980 (Taube and Barrett, 1985).

Trend 3: Diseases and Technology

Throughout the latter part of this century, advances in medical technology have brought about a marked reduction in premature mortality and an overall reduction in morbidity. Immunizations and vaccinations have eliminated major epidemics of infectious disease. Newer techniques in molecular biology show great promise in improving our understanding of the causal

pathway of cancer and perhaps a treatment or vaccine for AIDS.

Yet there are social, legal and ethical dilemmas to the "miracles" of modern medicine. The artificial respirator, which can nurse a person through a reversible process until cure is possible, is often used to prolong life when the body is ravaged by incurable disease and death is certain.

Newer anti-cancer treatments such as drugs, immunotherapy, genetically altered cells and radiotherapy may prolong life to varying degrees but are associated with a plethora of side effects. Transplantation of organs, either alone or in combinations, is quite costly both in immediate and long-term follow-up care. Medical appliances, such as personal monitoring devices, personal portable defibrillators and mechanical drug delivery systems are other examples of advanced biotechnology that need sophisticated surveillance by teams of experts for proper operation.

Trend 4: AIDS Epidemic

The Acquired Immune Deficiency Syndrome (AIDS) epidemic continues to take a heavy toll. Of the more than 100,000 Americans who have been diagnosed with AIDS, more than one-half have died. Another one to 1.5 million are thought to be sero-positive for the human immunodeficiency virus (HIV) or at risk for sero-converting. The disease is 100 percent fatal.

AIDS has become the fifteenth leading cause of death in the U.S. Between 1985 and 1988, AIDS-related deaths quadrupled in women 15–44 years old and AIDS now accounts for three percent of the deaths in this cohort (Chu et al., 1990). The cost in terms of human suffering is immeasurable. The medical expenses associated with an individual's AIDS treatment are estimated to be more than $75,000. Total health care expenditures for AIDS exceed 2.3 billion dollars yearly. The cost burden is particularly high in cities such as San Francisco and New York where more than two out of 10 medical and surgical beds are devoted to patients with AIDS.

In the absence of a cure or vaccine for HIV the spread of the epidemic will continue and health care costs will rise steadily. While the introduction of therapeutic agents such as AZT have diminished some of the symptoms of the diseases, they too are costly and result in prolonged life which requires additional long-term care.

In addition to the suffering experienced by persons with AIDS and their families, the epidemic places new burdens on health care providers. Many health care providers are threatened by the fear of contracting the disease. Moreover, the management of patients dying from AIDS places a heavy emotional burden on providers. There are reports of some providers who refuse to treat persons with AIDS and others who have left their professions for this reason.

Trend 5: Infant Mortality

Infant mortality declined from 100 infant deaths per 1,000 live births per year at the turn of the century to 20 in 1970, and to 9.8 in 1989. The United States was ranked twenty-second in the number of infant deaths in the world in 1987 (Health United States-1989, 1990). Infant mortality rates for whites and African-Americans differ widely; the rate for African- Americans in 1989 was 17.9, more than twice that of whites which was 8.6 per 1,000. The large discrepancy between the mortality rates of the races probably is due to short gestation periods and very low birth weights. Factors leading to low birth weight and prematurity include lack of prenatal care by expectant mothers, maternal smoking, alcohol and drug use, poverty and young maternal age. Most of these risk factors are controllable with proper prenatal counseling and access to care.

Trend 6: Enhanced Understanding of Diseases

Increasingly, researchers are learning to ask a different set of questions in their search to understand the complex nature of both chronic and acute disease processes. The idea that an individual progresses from relative health to a state of disease due to exposure to a single agent, even over a prolonged period, is becoming anachronistic, particularly with regard to chronic degenerative diseases. The current view is that, over time, genetic predisposition interacts with exposure to various physical, chemical and biological factors via elaborate pathways to produce disease.

Unfortunately, disease categories are defined in a way that may combine a number of processes with different causal mechanisms into a single disease merely because its endpoint manifests itself clinically and biologically in a particular manner. A disease might be more appropriately defined by its causal pathway than by its outcome. There is almost certainly a greater heterogeneity of diagnostic categories of disease than is currently recognized.

These concepts are challenging epidemiologists, biologists and clinicians to think analytically and to employ more complex and flexible disease models.

Trend 7: Environmental Factors

Our industrial age has created a world with many conveniences—but at a price. Twentieth century developments, transportation and human population growth have created countless environmental problems. In addition to the direct effects of air pollution (i.e. emphysema, lung cancer, aggravation of cardiovascular disease, etc.), the increased burning of fossil fuels has created the "greenhouse effect," trapping the sun's heat in the earth's lower atmosphere and possibly changing our climate permanently. This process is exacerbated by the production of acid rain from these fuels, as well as by the destruction of the vast rain forests in certain parts of the world. Furthermore, extensive deforestation reduces biological diversity, destroying plants which produce both discovered and possibly undiscovered naturally occuring compounds that might be used to treat cancer and other diseases (Kolata, 1991).The use of freon in air conditioners and chlorofluorocarbons (CFCs) in aerosol containers has devastated the protective ozone layer in the upper atmosphere, increasing the amount of carcinogenic ultraviolet radiation that reaches the earth.

Toxic and nuclear wastes pose immensely difficult disposal problems, posing a long-term hazard to ground water and soil. Lead-based paint and asbestos insulation still found in older buildings cause permanent infant neurological defects and pulmonary disease, respectively.

Low-frequency electromagnetic radiation has been posited as a cause of brain cancer and acute leukemia, but relationships have been weak and speculative up to this point. Radon gas, a natural substance found in soil in certain areas, seems to be a risk factor for lung cancer and may act synergistically with cigarette smoke.

All of the above agents are identifiable and preventable risk factors for specific chronic diseases. There is a growing awareness of the need to remove these hazards from the environment or to reverse the course of their environmental destruction.

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Medical Information and Technology

Overview

We are confronted with unparalleled rates of growth and change in medical technologies and the medical information database. The organization, financing and ethics of medicine are not keeping pace with the consequences of this change. Unanticipated outcomes of high technology are often met with a still higher level of technology rather than with a fundamental change in the planning, evaluating, distributing and financing of the technology. Appropriate incorporation of these issues into health professional education is needed and it is generally recognized that a deeper understanding of these social and ethical matters is vital.

The prevention, diagnosis and treatment of disease rely on sound clinical skills, effective communication skills, accurate information and effective intervention. Each area can be enhanced by appropriate medical technological support. This support includes a broad spectrum of devices, techniques, agents and information systems that can be brought to bear in the health care setting. Four trends seem to be the most important to the future of U.S. health care.

Trends

1. Growth and Impact of Medical Technology
2. Growth and Impact of Biotechnology
3. Medical Informatics and Expert Systems
4. Educational Applications

Trend 1: Growth and Impact of Medical Technology

Federally funded biomedical research activities are the well spring of new medical technology. These efforts combined with private sector initiatives result in a constant development of new, often competing diagnostic and therapeutic devices and agents. While reimbursement for the use of new technologies continues to promote the development of yet additional advances, government and private payers are becoming increasingly involved in assessing the efficacy and appropriateness of new medical technologies. The most difficult judgments involve relating the benefits of treatments and tests to costs while maintaining the human and ethical values necessary for the compassionate provision of medical care.

The present process of approving and disseminating technology is not systematic and is frequently unrelated to costs, values and needs. In contrast, examining the long-standing tradition of regulating pharmaceuticals as a prototype for regulation of technology highlights some of the pitfalls involved in decision-making of this kind. The FDA is criticized for conservatism in withholding approval of potentially valuable therapies while simultaneously being blamed for liability related to inadequate testing.

In many cases, growth in the development, adoption and use of technology has been rapid and uncontrolled. Compared on a per-capita basis to other industrialized countries, the U.S. has more expensive technologies and provides many more extensive procedures (Fig. 1). This growth has resulted in increasing health care costs, and in some cases improved health; but it has also resulted in a reliance on technology and a perceived dehumanization of medical care. Although the federal government promotes the development of new technology through its investment in research, as the major financer of health care the government also must pay the bills for these innovations as they become accepted practice. The government continues to explore how actively it should influence the diffusion of innovation.

Comparative Availability of Selected Medical Technologies, Units Per Million Persons

FIG.1

	Canada (1989)	Germany (1987)	U.S. (1987)
Open heart surgery	1.23	0.74	3.26
Cardiac catheterization	1.50	2.64	5.06
Organ transplantation	1.08	0.46	1.31
Radiation therapy	0.54	3.13	3.97
Extracorporeal shock wave lithotripsy	0.16	0.34	0.94
Magnetic resonance imaging	0.46	0.94	3.69

Source: Rublee, D. Datawatch: medical technology in Canada, Germany and the U.S. Health Affairs, Fall 1989 8(3): 180.

Traditional methods of cost containment and cost/benefit analysis have met little success when applied to medical technologies. For example, the argument has been made that increasing the use of noninvasive imaging techniques can replace invasive techniques reducing inpatient stays, complications and cost per patient. However, due partly to ease of use and fewer adverse effects, more patients will be examined than would have been using invasive techniques. It is true that from a health standpoint this outcome is desirable. However, using cost-containment as a rationale for the implementation is illusory; although costs are reduced for one group of patients, they are increased for another.

Cost containment also is at odds with the social and demographic forces at work in American society. The elderly population is increasing with concomitant increases in the prevalence of cardiovascular, degenerative and malignant diseases. Also, the "new" elderly have in general been more prosperous, better cared for and better insured than their predecessors. This combination of expanded need and enhanced expectation will dramatically increase the demand for high-technology solutions for their diseases and disabilities. Applying these technological interventions in an appropriately restrained and selective manner is the challenge to be met in the future.

The most common therapeutic intervention in health care is the use of prescription drugs. In spite of the well-documented potential for adverse outcomes (Manasse, 1989), and the substantial differences in cost seen between alternative therapies, no systematic approach has been developed for training health professionals to minimize problems in and maximize effectiveness of drug usage. Competing medical technologies also present dilemmas in the absence of thorough evaluation. While representing innovation and improvement, competing technologies also increase complexity, training requirements, equipment costs, duplication of services and the need for evaluation (Petitti, 1986). For example, several different surgical techniques, each with its proponents, may be approved for treatment of the same condition. However for a hospital to offer all of them to its patients and surgeons requires several different equipment and instrument setups, as well as scrub nurses and

ancillary staff trained to assist in several types of operations; the result is difficulties in both outcome and cost comparisons.

Government regulation of this process of technology dissemination is a substantial challenge. However, the tort system seems to play a powerful and often paradoxical role. On the one hand it may limit premature diffusion and adoption of technology. But, on the other hand it encourages the use of new and perhaps immature technologies because of the practice of defensive medicine due to the threat of malpractice litigation.

Although society reaps tremendous benefits from technology, unintended consequences occur when new technologies are introduced. Services such as dialysis and organ transplantation have led to prolonged survival of patients, some with extreme disability, illness and need for continued intensive care. Questions concerning the quality of life versus the cost of maintaining treatment are very difficult to answer, even on a case-by-case basis. It will be a painful process to reach a general solution for the triage-like allocation of funds based on prognosis, but many analysts believe this to be inevitable.

Trend 2: Growth and Impact of Biotechnology

Advances in the knowledge and techniques of molecular biology have progressed at a pace that surprises even those who work in this field. Technology, coupled with commercial materials makes possible a range of research, diagnostic and treatment methods undreamed of just a few decades ago.

- The monumental job of mapping the entire human genome has begun and the results will be available to researchers and clinicians all over the world.
- Recombinant DNA technology, even though still in its infancy, has produced human insulin, human growth hormone and hepatitis B vaccine.
- Genetic probes and markers, also produced by recombinant DNA techniques, are beginning to allow early diagnosis of genetic and metabolic diseases.
- Gene replacement therapy was recently used for the first time to insert genetic material into the bone marrow of a young girl in the hope of allowing her to develop a normal immune system.

Although most of the new biotechnology offers potentially huge scientific and medical benefits, some applications are causing anxiety among ethicists, religious leaders and policymakers. In the late 1970s a two-year voluntary moratorium on genetic engineering work was put into effect in response to these concerns while specific guidelines for future research were being delineated. The eventual result was the establishment of the federally funded Recombinant Advisory Committee (Barnett, 1990). Areas of great concern include:

- The risk of escape of genetically engineered microorganisms into the environment;
- "Enhancement" genetic engineering used to augment characteristics such as height, strength or hair color;
- "Eugenic" genetic engineering, attempting to alter or manipulate complex human traits such as intelligence, character malleability, etc.;
- Termination of health insurance benefits in response to a positive test for a genetic marker.

Trend 3: Medical Informatics and Expert Systems

The quantity and quality of professional information available to health care workers of every category have expanded exponentially. Likewise, the quantity and quality of patient-related information available to, and required to be kept by health care organizations and their workers have increased dramatically. The use of electronic patient records will soon be common. As patients live longer and we learn to do more, the information collected and maintained on patients will continue to increase. The widespread provision of preventive medical services, more competitive environments, tighter controls for professional and state licensure and accreditation and new demands related to patient outcomes and clinician behavior will further challenge the capacity of health care organizations to process information.

The dilemma presented by the medical information explosion is one of an "embarrassment of riches." It has been estimated that over 600,000 articles are published in the biomedical literature each year. If a conscientious health professional were to read two articles every day, in one year he or she would be over 800 years behind (Barnett, 1989).

Previous solutions to this impasse have included lengthening the duration of professional education, fragmenting the body of knowledge by sub-specialization and providing continuing education to fill the gaps. By most accounts these measures have reached their limits (Barnett, 1990). The challenge for the future is in mastering information: finding effective ways to gather, store, retrieve, evaluate, distill and select information in ways that enhance cognition and support action rather than increase confusion and indecision.

In addition to the information overload presented by the advance of basic science, new clinical technologies introduce additional difficulties. Diagnostic technologies generate tremendous amounts of numerical (e.g., enzyme levels), visual (e.g., CAT scan) and textual data. The amount of information is outstripping the diagnostician's ability to integrate and analyze it.

Data format is also a problem. Current technologies present data in their "raw" form, whether as numbers on a lab slip, dozens of individual CAT slices hanging on a radiologist's light box or a consulting cardiologist's handwritten report. The lack of first-order processing of information forces the health professional to assimilate large amounts of data that are in a particularly indigestible form. Hospital record databases present another format-related problem. They are often inaccessible from outside the hospital or department because of hardware incompatibilities, lack of a standard coding scheme and administrative resistance. This lack of standardization hinders the integration of different data pools and impedes progress in many areas of clinical practice and health services research.

Electronic records also present major challenges in maintaining and assuming confidentiality. Patients, providers and payers are all concerned about confidentiality of records. Access to and use of medical information is raising a number of ethical questions as well.

We are at a period of transition that encompasses the "worst of both worlds" in terms of information management. Some of our data are stored on computer, some on paper. A portion of our population is computer-literate, a portion is not. Data formats are not standardized and there is little communication between separate data repositories. It will probably be the work of at least another generation to complete the trend toward universal accessibility of biomedical data from any practitioner's desktop.

One example of an application of informatics, the Personal Health Data Cassette System, is demonstrated in the medical record keeping potential of computerized information systems. This integrated data system includes a patient's personal history, laboratory data, radiologic and other diagnostic images, pathologic and laboratory findings, etc., recorded on an optical disk for each patient to take to hospital visits anywhere (Hashimoto, 1984). Expected benefits include the reduction of costs and excess radiation by elimination of redundant tests, enhanced diagnosis by improved image comparison and integration of personal and laboratory data, and better availability of standardized data for clinical and epidemiological research.

New information systems are the underpinnings of social technology assessment and outcomes research. Standardized and accessible data will provide important tools for policymakers as well.

Trend 4: Educational Applications

It is generally acknowledged that, in light of the volume and rate of change of biomedical information, medical education must both become more efficient in effectively training professionals and must also endow them with a lifelong curiosity and desire to learn (Gremy, 1990; Barnett, 1973; Barondess, 1981). Medical informatics holds great promise for such training. For example, a new system consisting of a personal computer, software, monitor and a replica of a human torso is designed to enable students to practice critical-care medicine (Saliterman, 1990). The computer displays patient histories, lab results, treatment options, patient responses and a real-time cardiac monitor. The torso apparatus is used to practice insertion of a hemodynamic monitoring catheter. The cardiac monitor displays catheter pressure readings as the catheter is advanced into the heart as well as pulmonary artery and wedge position. Special screen calculators in the program are used to determine hemodynamic, respiratory, ventilatory and renal function indices. Significantly, the system contains no inherent data base. Authors and students build a library of informative cases by using the hardware and software tools provided. Individual "modules" of patient information are written and these are linked as the student manages a patient's care. Decision systems like this, in which variables can be manipulated and probabilities projected, give students the opportunity to see outcomes in a non-risk setting and to analyze the results of clinical decisions without harm to the patient.

Other innovations include an educational module that integrates organ-specific material from gross anatomy, histology, pathology, radiology, physiology and biochemistry in a structured, problem-solving, interactive environment with emphasis on the use of high-resolution visual images. The student can simultaneously overlay explanatory text or graphic highlights for clarification or expansion. The module allows the student to focus on a single organ system and browse through pertinent facts drawn from the various basic sciences for each particular image. The

design objective is to "enhance the integration of the basic sciences by allowing the student to link contextually the anatomical, biochemical, histological, physiological and pharmacological aspects of the organ system being studied" (Barnett, 1989).

Such interactive, information-rich visual displays can teach complex skills and concepts much more effectively than linear presentation by words and symbols. By replacing the disjointed presentation of minutiae with flexible, interactive teaching methods, the student is primed for a lifetime of learning. Self-paced lessons based on hyperlinks of text, graphics, video, sound and touch nurture curiosity.

In addition, the students now entering medical school are the first to have been exposed to computer technologies from an early age. They have used microcomputers to enhance their personal productivity in high school and college and they will expect their use during their professional lives as well. The resulting demand will drive the use and development of computer software applications specific to the health professions and will profoundly affect continuing education.

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Cultural Values in Health Care

Overview

The cultural values of a society are those beliefs that form the characteristic ways of thinking, acting and behaving of a particular group of people. These values form important guides to lead us through everyday life by establishing certain norms and limits to our behavior (Campbell, 1973). These cultural values also serve to shape questions and issues appropriate to the public policy realm and resolution of these issues within the public domain (Reich, 1987). The issues of health care are matters of life and death, so it is not surprising that values of our culture play out significantly within the health policy arena (Churchill, 1987). While trends in cultural values are important, they are not clear cut or definitive. Cultural values often go unnoticed until they evolve or the tension between two conflicting values begins to increase. Five trends in American cultural values seem to be particularly important for the future of health care.

Trends

1. The Individual, Community, and Health Care
2. Technology and Health Care
3. Consumer Satisfaction with Health Care
4. Changing Career Expectations of Women
5. The Ethic of Self-Fulfillment

Trend 1: The Individual, Community, and Health Care

A major part of American ethos is a strong and abiding faith in the individual. From the opening of the western frontier to the exploration of space, we as a people have significantly valued the contributions made by individual heroes (Smith, 1970). In our personal lives, we value autonomy, freedom and liberty as our most important political values. While these values have been severely critiqued over the past two decades (Lasch, 1978, 1984; Bellah, et al., 1985; Ketcham, 1987) they nonetheless seem to have been reaffirmed with the changes that have occurred in the past year within collectivist societies throughout the world (Fukuyama, 1989).

In health care, individualism is a powerful value for a high value on access to the very best care for individuals. In this regard, we translate access not as an universal individual right but as a right that is earned by an individual's merit and contribution to the economic system. In part, this value has lead to the development of the world's most technically sophisticated system of health care for those individuals who are able to afford it.

As a society we also value equality of access and opportunity. While this tradition has not been as prominent a part of our cultural past, it remains in contrast to the commitment to liberty and the rights of the individual. Throughout much of the twentieth century, access and opportunity have been extended to disenfranchised parts of the population in the areas of political rights, educational access and employment opportunities. By and large these political developments have been explored by governmental intervention, particularly at the federal level. The movement for some form of universal access to health care has been a part of the political dialogues since the end of the second world war.

Cultural desires for universal access to basic care and the most advanced care for some based on individual ability to pay are increasingly at odds with each other. We want ready access to the most sophisticated technology and heroic interventions available, but we are concerned that the number of people who lack any regular access to the system may be growing. In part, this tension has been heightened by the constraints imposed by the increase in health care costs. The tension between these values generates proposals ranging from a national approach to insuring access to considerations of limiting access to certain types of care.

The nation does not seem likely to embrace national reforms leading to a health care system resembling the Canadian or British systems, given our deep seated commitment to individualism and freedom (Bellah, et al., 1985). However, the competition between universal access to health care and individual freedom to choose seems to be too powerful to sustain for long without some new remedies emerging. What seems likely is that we will equivocate the values of freedom and individualism on the one hand and equality and public intervention on the other hand by advancing a range of incremental pluralistic responses. This seems more likely to occur at the state or substate regional level, permitting a wide variety of inputs from providers, payers, purchasers, patients and the public. Rather than one solution for all of these issues, we are more likely to see many experiments involving efforts to limit and manage care and extend access. The health professionals of the future must be prepared to participate in this process and to recognize it in the context of its cultural and political underpinnings.

Trend 2: Technology and Health Care

As a people, we have a strong faith in the efficacy of technology (Marx, 1964). While our lead internationally in technology has been challenged by other nations in recent years, we remain both inventor and manufacturer of the most sophisticated medical technology in the world. The cultural commitment to this technology translates into an enormous expenditure of health care dollars for the purchase and utilization of diagnostic and therapeutic technology. Our health care system is often criticized for its ability to generate new technology with little capacity to understand or manage its implication.

This valuing of technology presents tension with realistic limits of what technology can contribute to the reduction of morbidity and extension of life. It is also important to contrast the value we place on the technology interventions with values we hold for the quality of the patient's life and death. Sophisticated, high technology intervention in medicine is not a cure for most serious problems. In fact, many early interventions with the life saving technologies often extend the patient's life but commit the individual to a dependence on other technological interventions throughout that lifetime. This wholesale application of new technologies to many situations has led to an increasing cost and a diminishing level of return to the patient and society. Heroic interventions of a technological nature on the acute manifestations of chronic disorders is also characteristic of our current health

care system. These are essentially palliative but their widespread availability tends to mask their real efficacy from the public's perception. The availability of these measures also obscures the potential impact of prevention and health promotion on decreasing morbidity and mortality related to chronic disease (McKeown, 1979).

The American value for technological intervention in health is also at odds with the cultural concern for the quality of the patient's life, both before and after the intervention, and the ways in which the intervention may change the quality of the experience of death, both for the patient and family. While the first concern over technology is raised to the level of the entire population, the consequences of this issue remain focused on the individual. Clearly, the use of technology in health care creates the context in which the extension of life by all technological means may become more important than the maintenance of human dignity both in life and in death. Interventions to cure also obscure the obligation of the health provider to care, counsel and support the patients and families.

The development of medical technologies, particularly treatment oriented technologies will undoubtedly continue in the future. The public's health will benefit from the availability of such technologies. However, health professionals will increasingly be called upon to assess and understand these techniques within a broader context of efficacy and outcomes. They will also be placed in a role of helping their patients and their patients' families understand the individual consequences of these interventions and their impact on life and death.

Trend 3: Consumer Satisfaction with Health Care

Despite the fact that the United States spends more than 11 percent of its gross national product on health care, the American public is growing increasingly dissatisfied with its health care system and frustrated with current health financing arrangements (Blendon, et al., 1990). Among the reasons given for the growing dissatisfaction with the health care system are: rising health care expenditures; inadequate insurance protection combined with the lack of political clout to influence decision-making; and increased out-of-pocket spending.

Spending for health care has increased nearly two times as fast as the gross national product since 1965 (Levit, et al., 1989). While Americans remain satisfied with the quality of the care they receive, they no longer feel that arrangements for financing health care are adequate (Blendon, et al., 1990). As of 1989, more than 25 percent of the American public reported that it was without health insurance for some period of time (U.S. Bureau of the Census, 1990). Among those at greatest risk of having no insurance are part-time employees, individuals between jobs who do not qualify for disability insurance or Medicaid coverage, self-employed individuals, employees of small companies, children, individuals with certain health conditions, minority groups, the poor and the elderly (Davis and Rowland, 1983).

In other countries, unions, workers and other organized groups participate in determining the scope of health services covered and fees to be incurred to insure the population-at-large. In the United States, "individual employers...see these decisions as their management prerogative" (Blendon, et al., 1990). As a result, many employees have had little ability to voice their concerns and counter the current trend toward increased cost-sharing and reduced coverage of health services (Levit, et al., 1989).

Recent data have shown that on average, Americans are paying approximately 26 percent of the costs of health care out-of-pocket while 19 percent report paying more than 40 percent of these costs themselves (Levit, et al., 1989; Blendon, 1990). It is anticipated that the average United States citizen will spend $5,551 for health care by the year 2000 (HCFA, 1987) and financing the costs of health care will be an increasingly substantial burden for the majority of the population.

Given that the costs of health care continue to rapidly increase, insurance coverage is inadequate, individuals have not had a voice in determining the adequacy and extent of heath insurance coverage, and out-of-pocket spending has dramatically increased over the past few years, it is not surprising that 89 percent of the American public reports a desire for fundamental changes to the health care system (Blendon, et al., 1990). As a result, it will remain a major challenge throughout the next century to provide quality health care at reasonable cost to all Americans while adequately protecting individuals from the potentially catastrophic costs of care.

Trend 4: Changing Career Expectations of Women

Over the past decade, most of the limitations to women pursuing careers in all of the health professions have disappeared. Women make up the majority of the professional enrollment in pharmacy and veterinary medicine and are rapidly approaching such

numbers in dentistry and medicine (O'Neil, 1988).

As these and other career options have opened for women, they have not enrolled in the same number in many of the health professions chosen by women in the past. There continue to be major shortages in fields such as nursing, dental hygiene and other allied health fields. A growing trend since the 1950s and destined to continue in the future (Fig.1), this change in patterns of choice by women in the health professions is a part of a wider movement of women into all areas of the labor force.

These changes will mean different things for the various parts of the health professional community. Those professions that have been dominated by men will become increasingly female. Initially this may create tensions between faculties which are predominately male for these professions, and student bodies that are increasingly female. Within the delivery system early research indicates that women have different patterns and expectations of practice than their male counterparts. As the number of people with different values and orientations grow in the professions, it seems likely that changes in the care delivery system will accommodate some of these values.

FIG.1

Labor Force Participation Rates of Married Women, Husband Present, by Presence and Age of Children, 1950-1985

Year	Total	With no children under 18	With children under 18 years: Total	6-17 incl.	Under 6
1950	23.8	30.3	18.4	28.3	11.9
1955	27.7	32.7	24.0	34.7	16.2
1960	30.5	34.7	27.6	39.0	18.6
1965	34.7	38.3	32.2	42.7	23.3
1970	40.8	42.2	39.7	49.2	30.3
1975	44.4	43.8	44.9	52.2	36.7
1980	50.1	46.0	54.1	61.7	45.1
1985	54.3	48.2	60.8	67.8	53.4

Note: Children are defined as never-married sons and daughters, stepchildren and adopted children. Excluded are other related children such as grandchildren, nieces, nephews and cousins, and unrelated children.

Source: Bureau of Labor Statistics, 1986, Oxford Analytica, America in Perspective, Houghton Mifflin 1986 p. 91

Women are exiting the professions they have traditionally served at a time when there is a growing demand for them. These professions will be redefined and restructured by efforts made to attract women back to the professions and to orient the professions to the career interests of students who have not traditionally sought careers in the health professions. It would seem likely that changes in pay structure, work rules, decision-making and job structure would all be a part of the effort to make these careers attractive to traditional and non-traditional students and employees. Obviously most of those changes will have a profound impact on the delivery system.

Finally, as women move into the workforce at an increasing rate they have less time for the care-giver responsibilities that they have historically provided in the home. There will undoubtedly be some redefinition of male and female expectations in this regard. However, increasingly this informal care previously provided by women will become the responsibility of the formal systems of school nursing, home nursing and long-term and institutional arrangements. The impact will be important in terms of pediatric care, but the real impact will be in geriatric care and the changing expectations of women to provide this care for aging parents and relatives.

Trend 5: The Ethic of Self-Fulfillment

Over the past decade a number of social scientists have observed changes, particularly among the baby boom generation, in commitment by individuals to broader social goals and aspirations. Characterizations of the 1980s as the "me decade" or narcissistic or individualistic have tended to present this movement in a negative light. Others have seen the movement less as a form of selfishness and more as recognition of the limits imposed by modern life and the focus on self-fulfillment as a healthy response to such a situation (Yankelovich, 1981). Regardless of the value placed on the change there does seem to be a shift away from individual identification solely through the workplace and a diminished value on participation in public or civic life.

For health care these shifts will mean less willingness for professionals to sacrifice their personal lives for professional goals. This has already had a major impact on how health professional education is designed and carried out. It also means that individuals will increasingly depend on mutual satisfaction to keep them in a job, not the intrinsic values of professional life. Finally, it will mean that we will eventually define health care as a legally entitled right, but in doing so we will remove much of the personal and human quality that characterizes care when it is represented as civic or public responsibility by a profession or a community. These changes will be both welcomed and deplored by the general public.

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Governance in Health Care

Overview

The health care system is governed through complex interactions among government, health professionals, consumers, third party payers, employers and delivery systems. These groups use competition, standards and regulation to pursue a balance in their respective health care goals of access, finance and quality. There is no single source of governance or health policy, nor is there a single set of shared values or goals among these groups: the health care system is an amalgamation of many different agendas. Five trends in governance seem to be the most important.

Trends

1. Cost Containment: Competition Versus Regulation
2. Efforts to Increase Access to Health Care
3. Efforts to Assure Quality of Health Care
4. Growing Accountability in Health Care
5. Perspectives on Health Care Reform

Trend 1: Cost Containment: Competition Versus Regulation

Health care cost containment became a priority in the early 1970s after President Nixon warned of an impending "crisis" in health care costs (Starr, 1982). In just five years following the advent of Medicare and Medicaid, medical care expenditures had increased from 5.2 percent of GNP in 1965, to 6.6 percent of GNP in 1970 (Feldstein, 1988); the proportion from public expenditures increased dramatically from 26 percent to 37 percent of total health expenditures during the same period (Starr, 1982).

With the election of President Reagan in 1980, efforts to control health care costs through competition instead of regulation gained momentum (Stockman, 1981). Market forces were fostered with passage of the Tax Equity and Fiscal Responsibility Act of 1982 which encouraged health maintenance organizations and competitive medical plans to participate in Medicare (Longest, 1988). Perhaps more important than government initiatives were private sector efforts during the 1980s aimed at taking advantage of competitive forces. There was widespread pursuit of entrepreneurial activities by both for-profit and nonprofit health care organizations, explosive growth of managed care and active recognition by the business sector of the need to renegotiate health benefit plans. Many large corporations moved to self-insurance (Ginzberg, 1986).

In addition to competition-oriented approaches to containment, the 1980s also witnessed the introduction of important regulatory mechanisms. In 1983, Congress established a hospital prospective payment system (PPS) based on diagnosis-related groups for care provided to Medicare beneficiaries. Preliminary findings indicated that prospective payment of hospitals had some of the desired effects; the average length of stay of all Medicare patients in short-stay hospitals decreased by 17 percent between 1984, when the PPS was introduced, and 1986. Furthermore, the real annual rate of increase in inpatient benefit payments in the first three years of PPS was 3.5 percent, down from 7.1 percent for the five years prior to PPS (Health Care Financing Administration, 1989). Importantly, recent research suggests the PPS was effective in controlling costs without generally lowering the quality of care (Kahn, et al., 1990). This reimbursement scheme marked the new role of the federal government in attempting to limit its own expenditures (Longest, 1988).

Another important regulatory mechanism initiated in the 1980s was the Medicare physician payment reform program enacted as part of the Omnibus Budget Reconciliation Act of 1989 (Ginsburg, et al., 1990). The program included a resource-based relative value scale (RBRVS) for physician fees along with limits on balance billing, volume performance standards and increased support for effectiveness research and practice guidelines. Some elements of the program, such as effectiveness research and development of practice guidelines, have already been initiated (Agency for Health Care Policy and Research, 1990). The RBRVS for physicians' services is expected to be implemented in 1992 (Ginsburg, et al., 1990).

The debate over competition versus regulation as alternative cost containment strategies appears to be moot because "neither approach by itself holds much promise" (Ginzberg, 1988). Indeed, Longest (1988) believes the view of competition and regulation as "a dichotomy in which one or the other is proclaimed best" is "too simplistic" and sees the two approaches as compatible. Ginzberg (1986) warns of excessive reliance on competition because the competitive market can undermine cost containment. This occurs "when capacity increases, advertising and marketing increase, the boundaries of the system are expanded, duplication of costly services is encouraged and the public is pushed to consume more health care services than it needs" (Ginzberg, 1986). Another danger of competition is the threat to "traditionally cross-subsidized activities such as graduate medical education, research and care of indigent patients" (Longest, 1988).

In the future, factors such as the aging of the population and the needs of the uninsured will make demand-oriented controls difficult to implement (Fuchs, 1990). On the supply side, there will be continued attempts to limit growth in the number of providers, to control expansion of medical care facilities and equipment and to monitor the appropriateness of technologic innovation (Fuchs, 1990).

Trend 2: Efforts to Increase Access to Health Care

The nation's health policy objectives are directed at assuring that consumers can obtain needed care without having to overcome discriminatory financial, racial or other barriers (Longest, 1988). These access objectives and quality of care objectives dominated the health policy agenda from the 1940s through the 1960s (Longest, 1988; Fuchs, 1986). Specific governmental initiatives designed to improve access to health care included: enactment of the Hill-Burton Act to build hospitals; growth in the National Institutes of Health budget for medical research; emphasis

on tax policies that encouraged growth of private insurance coverage; and increased availability of providers through the support of health personnel education (Feldstein, 1988; Longest, 1988).

The most significant measures to improve access in this period were of course, Medicare and Medicaid. Several campaigns have been mounted during this century to assure financial access for all citizens through enactment of a national health insurance program (Starr, 1982). Possible reasons for the failure of national health insurance legislation to gain passage have included cost and public resistance to tax increases (Blendon and Donelan, 1990; Levey and Hill, 1989), the influence of special interest groups (Levey and Hill, 1989; Starr, 1982) and political scandal (Starr, 1982).

State and local government is attempting innovation independent of federal action. It has demonstrated new capacities and introduced a wide range of reforms for expanding coverage to uninsured populations (American Assembly, 1987). For example, more than a dozen states have developed high-risk pools or expanded Medicaid coverage. Others are exploring grouping small employers into insurance pools or multiple employer trusts (METs) that provide economies of scale, shared administrative expenses, shared risk and tax advantages of large group-sponsored plans. Connecticut opened its high-risk pool to those without health insurance, thereby diluting the adverse selection inherent of a high-risk pool by spreading the risk among young adults who comprise the majority of the working uninsured. In 1981, the State of Hawaii was granted a waiver of ERISA requirements allowing the continuation of their mandated employer-sponsored health plan. Fiscal problems have forced the Commonwealth of Massachusetts to delay the implementation of their mandated employer-sponsored health insurance program. In New York, the proposed Uny*Care program is designed to expand coverage and control costs by reducing administrative expenses. Oregon is addressing the issue by prioritizing health resource allocation.

Other approaches for improving access continue to be examined. While some view mandatory employer-sponsored health insurance as one way to improve financial access by reducing the number of uninsured, studies show that at least one-third of the uninsured would not be affected by mandated health insurance (Monheit and Short, 1989). Others believe that "growth of medical costs will be contained only if we ration care to those who are insured and are able and willing to pay for services" (Aaron and Schwartz, 1990). This belief is based on anticipated effects of three forces that will continue to put upward pressure on costs: technology, low growth in productivity and the aging of the population. Like it or not, rationing of health care is already occurring and "the debate over whether or not to ration care is largely irrelevant; the important questions are: Who will ration? Who will be rationed? What will be rationed?" (Fuchs, 1990).

Given the current plight of the uninsured, there will be continued attempts to improve financial access. "A unified policy solution to this problem is not in sight, however, because the ultimate 'realistic solution' likely will involve all levels of government, the private philanthropic and employer sectors and providers themselves in an uneasy and fractious policy of sharing the burden broadly" (Longest, 1988). More ominously, Kinzer (1989) notes that at the point in 1989 when the American Medical Association registered its support for mandatory health coverage for employees, "business support for the idea was widely reported to be fading."

Trend 3: Efforts to Assure Quality of Health Care

The structural dimension of quality of care in the U.S. has been monitored internally by hospitals through various departments and committees, and externally by requiring that physicians, nurses and other health care facilities be accredited by the Joint Commission on the Accreditation of Health Care Organizations and state licensing bodies.

Hospitals have been relying on internal quality assurance and utilization review committees to assess the quality of patient care. With the increased involvement of the federal government in the financing of health care and growing concern about the rising cost of health care, various other methods for assessing the process of care have been developed and used over the years. Between 1970 and 1975 experimental medical care review organizations (EMCROs) were established as voluntary associations of physicians with the mission of cooperatively upgrading and revising methods for quality assessment and assurance, and reviewing inpatient and outpatient services paid for by Medicare and Medicaid. The impact of EMCROs on quality of care has not been studied (IOM, 1990).

In 1972, experimental medical care review organizations were followed by professional standards review organizations (PSROs), which were voluntary nonprofit, local physician associations. PSROs were

charged with the mission of lowering public expenditures for medical care by curbing the overuse of medical services while ensuring quality of care. Their activities ranged from hospital utilization review, both concurrent and retrospective, to quality review studies. The extent to which PSROs were successful is unclear. Although they did not cut health care costs significantly, PSROs may have had a slight impact on quality of care. Budgetary constraints and the conflict of interest imposed through the dual responsibility of containing costs and promoting quality further weakened the program (IOM, 1990).

Based on the PSRO model, peer review organizations (PROs) were formed in 1983 to review the appropriateness and quality of health services rendered to Medicare beneficiaries (GAO, 1990). By reviewing a sample of hospital records using criteria developed by the Health Care Financing Administration, PROs monitored the appropriateness of utilization and quality of care in individual cases. However, little is known about the overall effectiveness of PRO activities. The number of cases reviewed by each PRO varies substantially as does the percentage of cases identified with potential quality problems (GAO, 1990).

Current trends in governance activities to assure quality fall into three categories: tort system, licensure of professionals and practice guidelines (see Appendix A: Quality of Health Care, p. 76).

Trend 4: Growing Accountability in Health Care

To make the most of the new "era of assessment and accountability," Relman (1988) believes we need "to know more about the variations in performance among institutions and medical practitioners and what these may mean and to know much more about the relative costs, safety and effectiveness of all the things physicians do or employ in the diagnosis, treatment and prevention of disease." With the resulting increase in accountability, Relman expects benefits for physicians, payers and the public.

This trend of increasing accountability is, in part, a reflection of access to the large amounts of health outcome data held by government and insurance entities. For example, the Health Care Financing Administration (HCFA) published a controversial document that combined Medicare claims data with mortality information and detailed mortality rates by hospital. Though the validity of these data was questioned by many, it was clear that for the first time the financiers of medical care have more information available to them than do its providers and that providers at all levels will be under closer scrutiny.

Ginzberg (1988) warns, however, of the dangers of accountability mechanisms, such as practice guidelines, when he states that "neither the profession nor the public would be well served by a nationally imposed set of norms of practice. Unless physicians and patients are willing to experiment with the new, medical practice will stagnate." The potential trade-off between accountability and control over medical decision-making means that increases in accountability must be handled carefully. Moreover, Caper (1988) criticizes the "micromanagement of clinical practice" and notes that "as fast as regulations and review protocols are written, physicians learn to circumvent them, resenting the intrusion into their clinical autonomy."

To minimize the negative effects of increased accountability, Shortell and McNerney (1990) take a broader view of accountability and recommend that "clinical and fiscal accountability should be established at the level closest to the delivery of patient care. At this level, providers should be encouraged to pursue their strategic initiatives, innovate and to learn from their mistakes." Shortell and McNerney (1990) advocate collaborative efforts such as those administered by the Rochester Area Health Corporation. Similarly, Caper (1988) recommends use of fiscal accountability mechanisms such as regional, state and national budgets since they would reduce the need for non-physicians to review individual medical care decisions.

A risk with budget-oriented controls, as explained by Altman and Rodwin (1988), is that, particularly when implemented at the national level, they force "explicit choices about the allocation of resources and consideration of social priorities." Given our experiences with "partial and fragmented" controls in the past, Altman and Rodwin (1988) are not optimistic about the ability of the federal government to successfully implement a budget-oriented control program. Furthermore, Altman and Rodwin (1988) note that "it is not clear that we really want to control spending." If a consensus is reached that fiscal accountability is necessary, local and regional initiatives such as those recommended by Shortell and McNerney will receive careful consideration.

Trend 5: Perspectives on Health Care Reform

The pluralistic nature and character of our society is reflected in the governance of the health care system. The authority, responsibility, ownership and use of

the health care system is spread among a diverse and complex group of governments, providers, consumers, third party payers, employers and delivery systems. As a result, there is no central source of health policy in the United States.

Fundamental changes in health care delivery will not occur in the short-term with the existing cast of players; "change is likely to be incremental" (Shortell and McNerney, 1990). Longest (1988) suggests that this pluralism will result in changes that will be "tactical rather than strategic...in response to those specific objectives that are most urgent or that have the most powerful advocates at a given time." Others, however, are more optimistic about the possibilities of fundamental change in health care in the near-term; they believe that political pressure to control spending is building and that there is more interest in sweeping proposals for reform (Fuchs, 1986; Iglehart, 1989). Such interest has prompted an entire issue of the Journal of the American Medical Association to be devoted to alternative financing arrangements and delivery reform (JAMA, 1991).

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Access to Health Care

Overview

Access to health care is defined as the ability to enter into the health care system independent of any changes in health status and is characterized by "those dimensions which describe the potential and actual entry of a given population group to the health care delivery system" (Aday et al., 1980). Access is a function of the affordability, availability, suitability, acceptability and appropriateness of services and the barriers that exist to limit access in each of these areas. Because access to health services has so many facets, solutions to problems of "reduced access" have been extremely elusive.

While access to health care services has increased for some, it has deteriorated for others. Groups that continue to have reduced access to health care include poor, rural, some urban and minority populations. Financial barriers exist for the estimated 30 to 40 million without health insurance. There are proportionately fewer physicians and health care facilities for individuals in rural areas and for the urban poor. Reduced access to preventive services such as prenatal and neonatal care and to certain public health services caused the U.S. to fall short of its health objectives for 1990. Six trends seem to be the most important.

Trends

1. Issues in Access to Health Care
2. Improved Access for Seniors
3. Declining Access for Low-Income Populations
4. Declining Access in Rural Areas
5. Access to Prenatal Care
6. Limitations in Public Health Services

Coverage

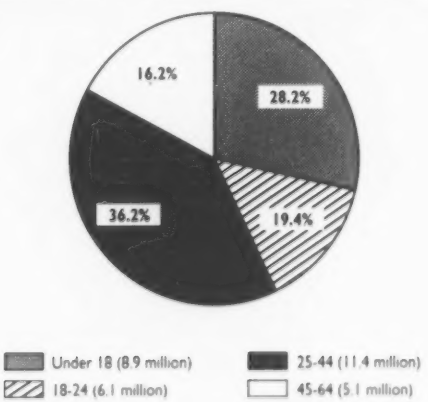
With the exception of South Africa, the U.S. is the only industrialized country that does not guarantee financial access to health care for all its citizens. The number of people without health insurance in the U.S. increased at four times the rate of the population growth during 1977 to 1987 (Short, et al., 1990). In 1989, between 30 and 40 million people were without health insurance coverage for all or part of the year, and an additional 65 million were underinsured (Short, et al., 1989). In 1987, those under age 24 accounted for more than 64 percent of the non-elderly uninsured (Fig. 1).

Between 1977 and 1987, the uninsured African-American population grew from 18 to 25 percent, the uninsured Hispanic-American population grew from 20 to 35 percent and the uninsured white population grew from 12 to 15 percent. The proportion of the non-elderly with family incomes below the poverty level that lacked health insurance rose to nearly 30 percent in 1987 (Fig. 2).

Providers

The number and distribution of providers is another measure of potential access. The distribution of physicians is skewed with a disproportionately large number of physicians, particularly specialists, practicing in urban and suburban areas. Distribution of physicians within urban areas often is not uniform either. The urban poor also are affected by the decline in the number of physicians who accept Medicaid (Yudkowsky et al. 1990).

FIG.1 **Distribution of Non-Elderly Uninsured, by Age, 1987**

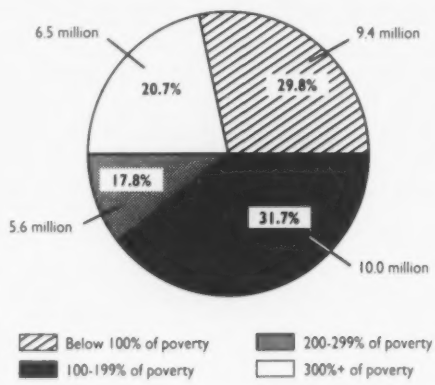


Source: Pepper Commission

Utilization

Utilization rates, indicative of realized access have declined recently, especially for minorities and the poor. A recent Robert Wood Johnson Foundation study found that between 1982 and 1986, there was a decline in the average use of medical care for all population groups (Freeman et al. 1987). This decline was attributed to an increase in the proportion of the population without a regular source of care, which increased 65 percent to 43 million. The study also found that the number of people who had not visited a physician in a year increased 70 percent. The number of physician visits for the poor in fair or poor health declined by eight percent, while visits for the non-poor increased by 42 percent, widening a gap that had all but disappeared in previous studies.

Distribution of Non-Elderly Uninsured, by Family Income as a Percentage of Poverty, 1987 **FIG.2**



Source: Pepper Commission

Access to preventive services also declined. Ten percent of African-American children and 16 percent of Hispanic-American children under the age of two had not had a physician visit within the year prior to the Robert Wood Johnson study (Rowland, Lyons and Edwards, 1988). Two-thirds of all hypertensives were poorly controlled, and one-half of those with a diastolic blood pressure of 105 or above had not seen a physician within the last year. Eighty percent of minority toddlers and 40 percent of all children did not have a full series of vaccinations. Twenty percent of all women had not had a Pap smear in the past five years.

Another measure of realized access is how well we achieved the goals of the 1990 U.S. Health Objectives.

A report released by the U.S. Department of Health and Human Services indicated that the goals established for prenatal care and infant mortality, in particular, were not met by a substantial margin.

Trend 2: Improved Access for Seniors

A watershed in American health care was the passage of the Medicare program in 1965, designed to provide hospital insurance for individuals over age 65, those disabled and those eligible for social security benefits. Medicare Part A is financed by social security trust funds and pays for most hospital expenses. Approximately 95 percent of the aged population is enrolled in Part A and approximately 70 percent of this group has additional Medigap insurance that covers all or some of the deductible or coinsurance. Part B of Medicare, a supplemental policy paid by a combination of recipient contributions and federal funds, covers nonhospital expenses such as payments for physicians and physician-ordered supplies and services, out-patient hospital services and home health visits.

Over the past 25 years, the Medicare program has substantially expanded access to health care services for most individuals over age 65. In 1985, Medicare expenditures contributed 40 percent of the overall public financing of health care. However, out-of-pocket expenditures (co-payments) have increased steadily since the program's inception.

Trend 3: Declining Access for Low-Income Populations

The introduction of Medicaid in 1965 improved access to health services for millions of low-income Americans by reducing financial barriers (Woolhandler and Himmelstein, 1989). From 1965 to 1980, mean physician visits and hospitalization rates for the poor with Medicaid equalled those of the general population; the proportion of African-American women receiving early prenatal care increased 50 percent; the number of people who had not seen a physician in two years was cut in half; and the proportion of health care costs paid out of pocket decreased from 52 percent to 28 percent. The trend of increasing access to health services reversed during the 1980s as the number of people eligible for Medicaid remained about the same while the number of people below the poverty level increased dramatically. However, Medicaid still plays a key role in increasing access to health services for 22 million low-income Americans, as sick poor people with Medicaid coverage use health services at a similar level as the nonpoor sick. In comparison, the poor without Medicaid coverage use only one-third as many hospital days and have fewer physician visits than the poor with Medicaid.

Increased access for the poor through Medicaid has been hindered by several factors: only 46 percent of those below the poverty level qualify for Medicaid, leaving a significant proportion of the poor without any health insurance; spending on Medicaid does not keep pace with inflation; provider participation has declined; and benefits packages vary from state to state.

Trend 4: Declining Access in Rural Areas

Distribution of Hospitals

The distribution of hospitals has affected the access to health care for rural residents. Of the 545 hospitals closed in the United States between 1981 and 1988, about one-third were rural community hospitals. In 1986 rural hospital closures outnumbered urban closures. Of the 2,674 rural hospitals open at the end of 1985, 4.5 percent had closed by 1990. Of the 3,058 urban hospitals open at the end of 1985, 3.6 percent had closed. Urban hospital closings appear to be related to increased competition, excess bed capacity, declining patient volumes and occupancy rates, poor management and increasing trends toward outpatient services. In contrast, rural closings are associated with changing demographics, declining rural economics, changing reimbursement policies (especially Medicare), aging facilities and the inability to attract and retain health care professionals.

Medicare Prospective Payment System

Medicare's Prospective Payment System has had a major economic impact on rural hospitals. Although only about one-quarter of rural poor qualify for Medicaid, Medicare recipients frequently comprise over one-half of a rural hospital's patient load, with 75 percent Medicare becoming more common. This problem is further compounded because rural hospitals receive on average approximately 37.5 percent less than their urban counterparts for identical services. Four out of five hospitals with negative Medicare operating margins are rural and 10.8 percent of these are the sole hospitals in the community.

Distribution of Physicians

Distribution of physicians also has affected access to care in rural areas. Metropolitan areas have five times the rate of hospital-based physicians and almost twice the rate of office-based physicians as nonmetropolitan

counties. There are approximately 1.5 physicians per 1,000 residents in urban areas compared to .67 per 1,000 in rural areas. Physician availability in rural counties is less than one-third of the U.S. average.

Trend 5: Access to Prenatal Care

A principal 1990 U.S. Health Objective was to ensure that no more than five percent of women are denied access to prenatal care during the first trimester. Between 1977 and 1987, the percentage of white women not receiving prenatal care fell from 21.8 to 20.6 percent; among African-American women, from 39.8 to 38.9 percent; for Native American women from 43.7 to 39.8 percent, and for Hispanic-American women from 43 to 39 percent.

The goal of reducing low birth weight infants to five percent also was not met. The percentage of low birth weight infants dropped only from 7.1 to 6.9 percent. The percentage of unplanned births to women in poverty increased from 52.5 to 55.2 percent compared to 30 percent for women at 150 percent of the poverty level. There were 10,311 births to girls age 14 and younger; the U.S. Health Objective goal is zero.

Trend 6: Limitations in Public Health Services

Drug Treatment

Access to drug treatment centers has become a serious problem in the U.S. The Presidential AIDS Commission estimated that there are 1.2 million intravenous drug abusers in the nation, only 150,000 of whom are in treatment programs. It is estimated that 56,000 hard core drug abusers are refused treatment each day because of insufficient treatment programs. There are long waiting lists for treatment centers in New York, Los Angeles, and Washington, D.C. While drug abusers wait, most continue to use drugs and commit crimes to support their addictions. Delays also have implications for the spread of HIV. While there is debate over the success of the drug treatment programs, prevention and education appear to be the best remedy.

Preventive Public Health Services

A substantial amount of preventable mortality continues to occur. For example, in 1990 it is projected that approximately 140,000 Americans will die from injuries; 50,000 from homicide or suicide, 40,000 in motor vehicle accidents and 10,000 from job-related mishaps. Furthermore, more than 12 million will contract a sexually transmitted disease and over 50,000 women will die from breast and cervical cancer. Many of these deaths could be prevented through educational, screening and follow-up programs.

Preventable morbidity continues at unacceptable levels also. For example, immunizations are failing to reach many in need and major outbreaks of measles (more than 1,000 cases) occurred in several major cities. Most outbreaks were in urban preschool age children who were not properly vaccinated. Moreover, among children ages one to 19, injuries cause more deaths and disability than all diseases combined. The homicide rate for U.S. teenage males is nearly five times the rate in Canada or Australia and 20 times higher than in European countries.

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Financing of Health Care

Overview

Health care costs have risen dramatically over the past 30 years. Currently, nearly 13 cents of every dollar of the U.S. gross national product (GNP) goes to financing health care. This meteoric rise has been fueled by multiple factors, including general economic inflation, population growth, technology advances and increasing frequency and intensity of services. As costs have escalated, the federal government and private insurance carriers have both absorbed larger shares of the expenses. The proportion funded by private insurance has leveled off and may be declining. Since 1965 the percentage of the health care dollar going for hospital care has decreased slightly while the proportion for physicians services has increased. Two trends in financing health care seem to be important.

Trends

1. Growing Health Care Expenditures
2. Sources of Rising Health Care Expenditures

Trend 1: Growing Health Care Expenditures

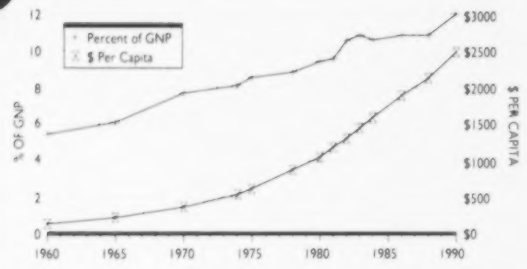
Health care expenditures, made by a combination of private (individuals and businesses) and public (federal and state) sources, have continued to consume a growing portion of the U.S. gross national product (GNP). Since 1965, spending for health care has grown almost twice as fast as the GNP (Levit, et al, 1989). While national health expenditures were approximately 5.9 percent of the GNP (about $42 billion in 1965), by the end of 1990 they are expected to reach 12 percent of the GNP (about $647 billion) (Levit, et al, 1989). In addition, per capita health expenditures climbed from $205 in 1965 to over $1,900 in 1987 (Fig. 1).

With the exception of the Economic Stabilization Program of 1973-1974 and the implementation of Medicare's Prospective Payment System (PPS) for hospitals in 1984, both of which slowed the growth of national health care spending, the annual growth of health care services and supplies in the United States has been faster than the growth in population, consumer price index or gross national product since 1965 (Levit, et al., 1989) (Fig. 2).

In 1965 the private sector paid for 74 percent of health care expenditures. This proportion declined to 60 percent in 1987. On the public side, the largest increase was in the proportion paid by federal sources, which doubled from 13.2 percent in 1965 to 28.7 percent in 1987. This increase has been attributed primarily to the Medicare program (HCFA 1989) (Fig. 3 and 4).

National Health Expenditures: Per Capita and as Percent of Gross National Product

FIG.1



Source: Levit, et al. 1989

Within the private sector, however, the relative burden by payer source has changed dramatically (Health Insurance Association of America, 1989). In 1965, for example, individuals paid directly for over 60 percent of all health expenditures. By 1986, however, that share dropped to 44 percent, due primarily to a trend favoring the availability of comprehensive, employer-paid health insurance benefits. The business share of health services and supplies increased from 18 percent in 1965 to 29.9 percent in 1987 (HCFA 1989). Interestingly, in the last part of the 1980s the proportion of private health insurance expenditures has begun to level off (Fig. 5).

The private sector has developed a spectrum of cost controlling measures, such as increased deductibles and coinsurance, health maintenance organizations (HMOs), coordination of benefits for multiple-insured patients, utilization review, second opinions and audits of provider bills. There has been a trend among large and medium-sized corporations to reduce their health care expenditures in the 1980s by using self-insurance. This practice is, however, fracturing the insurance pool, making health insurance unaffordable for small employers and individuals, and is illustrative of how many of the "cost cutting" measures are actually cost shifting.

Average Annual Percent Change from Previous Year for U.S. Population, GNP, and Health Expenditures

FIG.2

ITEM	1965	1970	1980	1984	1985	1986	1987
U.S. Population	—	1.0	0.9	1.0	0.9	0.9	0.9
Gross National Product	—	7.6	10.4	8.3	6.2	5.2	5.3
National Health Expenditures	—	12.3	12.7	12.0	8.1	8.4	8.4

Source: Levit, et al. 1989

The proportional distribution of personal health care expenditures for hospital care, physician services, dental services, pharmaceuticals and nursing home care has not changed substantially from 1979 to 1989 (Vincenzino, 1990) (Fig. 6).

Trend 2: Sources of Rising Health Care Expenditures

General factors accounting for part of the steady increase in health care costs include:

- General economic inflation, which accounts for approximately one-half of this increase;
- Population growth, though slowing, still accounts for about eight percent of the annual increase in total health care costs;
- Increasing frequency and intensity of services, which accounts for approximately 30 percent of the increase in total costs; and
- Real price increases in excess of the above factors.

contributing approximately 10 to 15 percent to total costs (Freeland, 1988).

Rising health care costs have also been attributed to above-average increases in wages and price levels, advances in medical technology and rising utilization (Vincenzino, 1990). Other factors include increases in administrative costs (Fuchs, 1990), malpractice-related expenses (Hatlie, 1990) and intensity of services per hospital admission with requisite increase in personnel (Gornick, et al., 1985). Intensive care unit care is approximately 3.8 times more expensive than routine hospital care (Wagner, 1983), and a significant proportion of the health care dollar goes to care for patients in the last year of life (Schroeder, 1984).

Other factors that give rise to these changes include:

- Increases in third party payments that insulate the individual from the effects of rising prices;

FIG.3

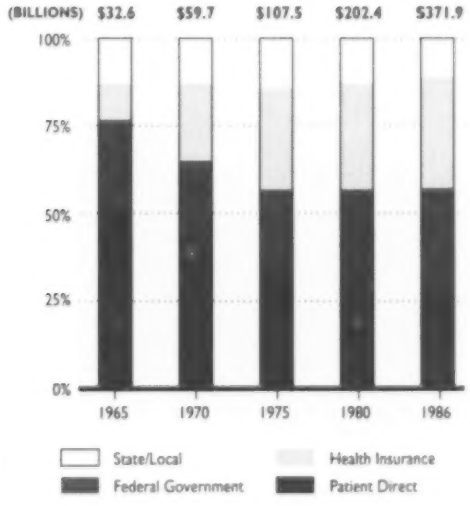
Percent Distribution of National Health Expenditures by Payer

ITEM	1965	1970	1980	1984	1985	1986	1987
Total Health Expenditures	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private	73.8	63.0	57.6	59.2	58.4	58.6	59.4
Public	26.2	37.0	42.4	40.8	41.6	41.4	40.6
Federal	13.2	23.6	28.6	28.5	29.5	29.4	28.7
State/Local	13.0	13.5	13.8	12.3	12.2	12.0	11.9

Source: HCFA, Office of the Actuary.

FIG.4

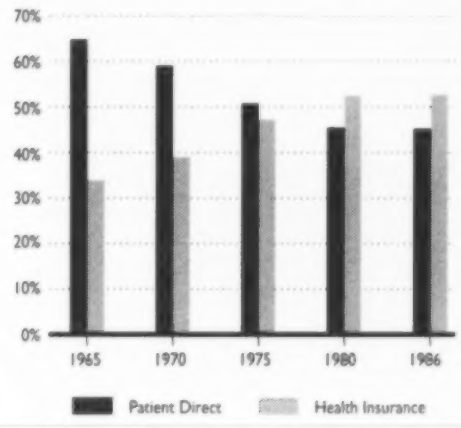
National Health Expenditures: Proportions and Sources of Funds



Source: HCFA, Office of the Actuary.

FIG.5

Proportion of Private Sector Expenditure by Source of Funds: 1965-1986



Source: HCFA, Office of the Actuary.

- Reimbursement methods that have offered financial incentives for expensive procedure-based treatments and less for "cognitive" types of therapy (U.S. Congress, 1986);
- An aging population requiring more intense and longer-term treatment of chronic diseases (Fig. 7); and
- A more affluent, educated, consumer-oriented population that has increased expectations for health care services and outcomes.

While there has been much discussion of the fact that a small proportion of the population is responsible for the majority of health care expenditures (Gornick et al., 1985; Gornick and Prihoda, 1983; Riley et al., 1986), most evidence suggests that rising costs have not been driven primarily by the increasing costs of the heaviest users. Rather, cost increases are due to a variety of factors, including increases in service use across the spectrum of patients and changes in the age

FIG.6

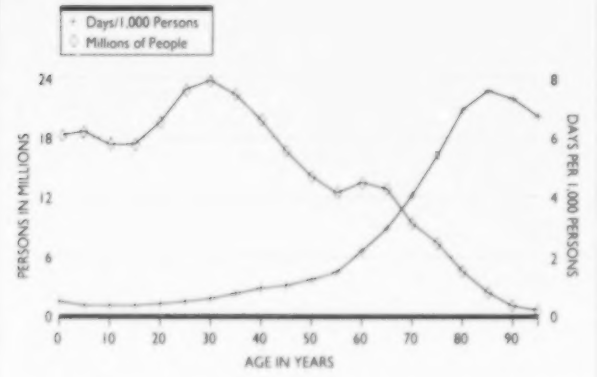
Distribution of Health Care Expenditures by Type: 1979-1989

Service	1979	1989
Hospitals	45.9	43.6
Physicians	21.2	23.9
Dentists	7.0	7.4
Drugs/Devices	9.0	7.1
Nursing Homes	9.2	9.1

Source: Vincenzino, 1990.

Population and Days of Hospital Care Per 1,000 Persons by Age Group

FIG.7



Source: HCFA, Office of the Actuary. Excludes maternity and neonatal use.

structure of the patient population. "It is likely that many new medical technologies are of relatively low cost, and that low, moderate and high cost users have all benefited. New medical technologies, as measured by increases in services, have clearly produced a general upward shift in costs, but they have not altered the overall relative distribution of health care costs..." (Riley, et al., 1986). Similarly, recent research has indicated that "much of the increase in health care costs attributable to the proliferation of health care technologies is not due to new, big, expensive procedures, but to the proliferation of new procedures that are not expensive individually" but when used broadly, have major cost implications (Riley, et al., 1986).

This situation is not likely to change soon, in light of the "defensive medicine" widely practiced to defend against malpractice litigation. Also, mass media makes consumers and providers aware of new techniques, procedures and products, increasing the demand for the newest and the best. Dissemination and adoption of new technology precedes thorough evaluation of cost- or clinical-effectiveness, making attempts at control difficult because so many providers and patients would be affected.

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Health Care Delivery Systems

Overview

Individual practitioners provided most of the health care in the U.S. until well into the twentieth century, mainly treating acute conditions (Madison and Konrad, 1988). Subsequently, for decades, the major organizational entities in health care have been physician-dominated hospitals. Many hospitals were inefficient and had limited control over professional workers (Feldstein, 1988), while few pressures existed for change until costs rose rapidly in the 1970s. However, the health care delivery system is now undergoing considerable change.

The aging population has brought the challenges of long-term care into sharp focus. Heightened awareness of the causes and treatments of mental disorders combined with third party coverage, have resulted in the increase of types and numbers of mental health services. There are eight trends that will shape the delivery of care in the U.S.

Trends

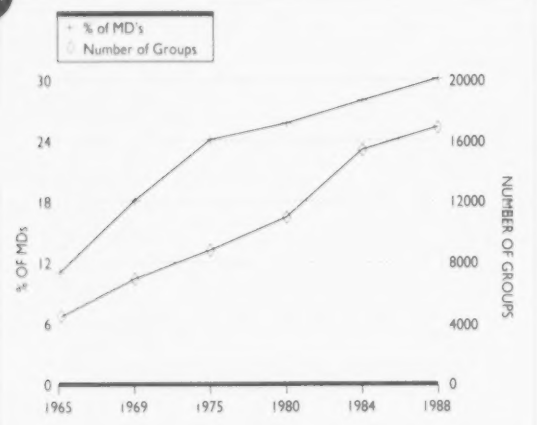
1. Increased Organizational Complexity and Diversity
2. The Spread of the Corporate Paradigm in Health Care
3. Shift from Professional Values to Managerial Values
4. Shift from Inpatient to Outpatient Care
5. Emphasis on Primary Care
6. The Changing Nature of Long-Term Care
7. Growing Acceptance of Mental Health Services
8. Health Care Personnel

Trend 1: Increased Organizational Complexity and Diversity

Since the late 1960s there has been steady innovation in forms of health care organizations. These include health maintenance organizations (HMOs), preferred provider organizations (PPOs), alliances (federations) of hospitals, home health agencies, freestanding dialysis units, urgent care centers and ambulatory surgery centers among others. Large group practices lured practitioners by offering leadership, organizational support, economic security and power; the number of multispecialty group practices with over 1200 physicians grew from 46 in 1980 to 168 in 1986 (Ellwood, 1988) (Fig. 1).

FIG. 1

Number of Group Practices and % of Physicians in Groups by Year



Source: AMA Dept of Prof. Activities

In 1988, 30 percent of all physicians practiced in group settings (AMA, 1990). "This is something we're going to keep seeing in the future. Given the managed care environment, groups become attractive to physicians because they can better represent them. There's power in numbers" (Havlicek, 1990).

Health maintenance organizations are the best known and fastest growing purveyors of the "managed care" health care plans. However, many fee-for-service plans of this type also exist in the form of PPOs. The concept of managed care and the medical "gatekeeper" are attempts to bring order and efficiency to the present health care system. Within this framework, primary care physicians usually supervise all of the health services required and sought by individual patients under their care. Patients receive continuity of care from their gatekeepers who manage and coordinate all aspects of patients' health needs, from employment physical examinations to open heart surgery. The social HMO, a relatively new managed care program for the elderly, acknowledges the crucial role of social and daily living concerns to the health and welfare of the elderly. These plans provide support in daily living activities as well as more conventional health services to subscribers.

Hospitals have formed local, regional and national alliances in an attempt to gain a competitive advantage. Nationally, nearly 45 percent of hospitals are members of systems consisting of two or more hospitals owned and controlled by a corporate entity. At the local level, hospitals compete not only with each other, but with freestanding urgent care and ambulatory surgery clinics, community birthing centers, outpatient radiology and laboratory centers, inpatient substance abuse and mental health centers and many more organizational entities attempting to define a niche that maximizes efficiency and/or financial return. In response, approximately 30 percent of hospitals have joined federations coordinated by an umbrella organization to pool resources and share costs by economies of scale (Zuckerman and D'Aunno, 1990). The organizational efficiencies and expertise that can be brought to bear by a federation of hospitals can enhance their competitiveness in this demanding economic environment since a single hospital may be unable to internally generate all of the necessary resources and functions.

"Hospital alliances exemplify organizational strategies that involve cooperation rather than competition" (Herriot, 1986). This "resource dependence" model of interorganizational cooperation typifies the changes brought about by the turbulence and complexity of the American health care system. According to Zuckerman et al. (1990), the model suggests that organizations "adopt strategies to secure access to critical resources, to stabilize relations with the environment and to enable survival." Alliances offer hospitals a way to reduce dependency while maintaining autonomy. The effects of hospital alliances on overall patient care costs, quality of care and access to care have not yet been tested.

Trend 2: The Spread of the Corporate Paradigm in Health Care

Much of the health care system's infrastructure and many of its programs, such as county hospitals and indigent care centers, were heavily subsidized in the past. However, as the cost and complexity of services in the medical marketplace increased, individual purchasers were replaced by organized groups of buyers

representing business, insurers, government and unions. When health care costs spiralled and resources dwindled, the purchasers of medical care progressively circumscribed their contribution to the maintenance of the system's infrastructure (Nutter, 1987). As a result, there was diminished ability to "cost-shift" which reduced funding for the uninsured and underinsured and removed the previously built-in subsidization of health professional education and training. Termination of programs to pay for the education of medical students who committed to work in underserved areas after graduation further affected access. Many inner city and rural health care organizations cannot obtain staff because large debts incurred during training keep many health care providers who might be willing to work in such settings from doing so.

Changes of this type have led Siegler (1985) to suggest that we are now in the corporate or "bureaucratic parsimony" phase of American medicine. "Health care goals have been drowned out by the noise of commerce" (Ellwood, 1988). While Relman (1980, 1987), and others (Fuchs, 1987; Nutter, 1987) decry the "monetization" of health care in the United States, the corporate business paradigm spreads throughout the industry. Management accounting, capital budgeting, product lines and joint ventures are now accepted terminology in the health care industry. Serious efforts to define and value the services provided by the industry have resulted in the development of a new basis for fee determination (Hsiao, et al., 1988).

Despite its many critics, the monetization process implicitly demands better accounting throughout the entire health care system. From these and other pressures, rigorous measures of performance are being derived from the new emphasis on outcomes research and the demands of buyers for evidence of the health value of medical services (Roper, et al., 1988). To bring the patient back into the health care equation, Ellwood (1988) has advocated the institution of a common database that integrates information and analysis of patients' clinical treatments and health outcomes with the financial and insurance data already collected. This would allow clinicians and program planners to better estimate the relationships between interventions and outcomes, and would enable an estimate of costs to benefits. The technologies for implementation of such a system are the focus of extensive research and development.

Trend 3: Shift from Professional Values to Managerial Values

Historically, physicians have dominated the health care system in the United States (Feldstein, 1988). Physicians remain a key element in the provision of most medical services, deciding the type and number of services provided to most individual patients. In addition, the political power of 500,000 physicians is substantial; however, the vast increase in complexity, competition, monetization and medical care costs lessens physicians' influence over the health care system (Kralewski, et al., 1987).

Most physicians are trained in tertiary academic medical centers, and therefore receive little training in practice-based organizational and financial methods. It is not surprising then that physicians find that group practices provide leadership, organizational support and economic security through the incorporation of management strategies.

Clinical decisions that were once made solely by the individual practitioners are being affected by management. On a broader scale, medical practice standards, assessments and guidelines—specific rules to be used in response to a specific medical condition—are being implemented by health care organizations in an attempt to control outcomes and costs.

Trend 4: Shift from Inpatient to Outpatient Care

Cost containment incentives such as diagnosis related groups (DRGs) and second opinions, as well as improved technology and consumer preferences have reduced hospital length of stay, and have increased the "intensity mix" of hospital patients . These factors, and the resulting movement toward niche marketing of centers providing ambulatory, surgical and other medical services, has led to a movement of the patient pool to the outpatient setting (Fig. 2). In-

Hospital Expenditures and Annual Growth Rates: 1984-1990 FIG.2

SETTING	Amount in Billions 1984	1986	1988	1990	Percent Ave. Annual Growth 1978-84	1984-90
Inpatient	114	126	148	174	14.4	7.3
Outpatient	20	28	36	46	18.4	14.5

patient expenditures grew at an annual rate of approximately 15 percent during the late 1970s. This rate dropped to approximately 7 to 8 percent in the mid 1980s, while outpatient expenditures declined only slightly to about 15 percent (Arnett, 1986). During 1985 the total number of admissions declined by

5.5 percent and total days by 7.7 percent, indicating a shorter average length of stay.

A survey by the American Association of Retired Persons (AARP) found that, from 1983 to 1987, the number of outpatient surgical procedures done on people 65 and over increased by 215 percent, and that this group of patients preferred outpatient procedures to those done in a hospital (AMA News, 10/5/90).

Shifting to outpatient care was appealing for financial reasons. Charges for outpatient care were not yet constrained by a prospective payment system, thus maximizing income for both the hospital, which could concentrate on efficient provision of "big ticket" procedures, and the outpatient center, which can charge the market rate for large numbers of simpler procedures. However, the possible implementation of an ambulatory prospective payment system could alter the situation. Surgical technology has adapted for outpatient settings in response to, and in support of this trend. Miniaturization and automation of biomedical testing equipment allows tests and workups that were formerly limited to an inpatient setting to be performed in a non-dedicated outpatient environment.

In response to privately owned "surgi-centers" and other types of outpatient services, hospitals, and hospital systems have begun innovations of their own, including aggressive marketing of outpatient services in forms that are competitive with HMOs, surgi-centers, urgent-care centers, and other non-traditional settings (Arnett, 1986). This trend may slow somewhat as fees for outpatient care are controlled more tightly and physician payment reform shifts money away from surgical procedures.

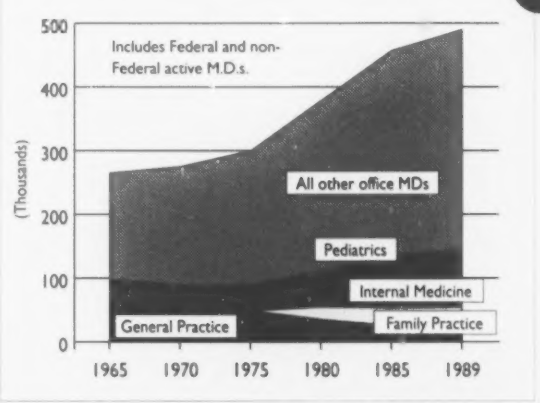
Trend 5: Emphasis on Primary Care

Consumer interest, cost containment and access concerns have focussed interest on enhancing the breadth and depth of primary care. Since 1963, the number of physicians has more than doubled, but the ratio of office-based primary care physicians to the national population has decreased, with rural areas and the inner cities being especially hard hit (Barnett, 1989) (Fig. 3). Medical training programs, increasingly reliant on income from specialty and procedural services, reduced funding for primary care education. Adequate funding is considered a major barrier to expanded graduate medical education for primary care providers in ambulatory settings (Institute of Medicine, 1989). Primary care physicians receive a lower income relative to other specialties, further inhibiting incentives and supply.

Demand for family and primary care physicians, however, appears to be increasing (Bowman, 1989). Managed care systems are recognizing the appropriateness and cost-effectiveness of providers trained in comprehensive, holistic, preventive medicine. There is evidence to support the benefits of the longitude and coordination of care found in this type of practice (Yamamoto, 1986). Further, this style of medicine dovetails nicely with a patient base that is increasingly oriented toward consumerism, disease prevention and health promotion.

The tide may turn when Medicare physician payment reform takes effect in 1992 (private carriers are expected to follow suit shortly thereafter). The proposed system will address inequities in payments resulting from both practice specialty and geographic distribution, increasing valuation for cognitive types of

Trends in Primary Care Office MDs FIG.3



Source: AMA: Physician Characteristics and Distribution in the U.S., Table A-12

care at the expense of procedural types (Wilensky, 1990). These changes will address some of the disincentives toward the training and practice of primary care medicine in the United States.

Trend 6: The Changing Nature of Long-Term Care

While the aging of the U.S. population will have profound ramifications for the health sector in general, it will have an overwhelming impact on the demand for long-term care (LTC). The population over age 65 is projected to increase from 8.1 percent in 1950 to approximately 21.8 percent by 2030 (U.S. Bureau of the Census, 1989). The increased longevity of the population, particularly of those with serious chronic illnesses, will pose serious challenges for the provision of medical and other LTC services (Wiener, et al.,

1986; Mechanic, 1987). Financing both new and existing institutionally and community-based LTC services will become increasingly vital (Wiener, et al., 1986; Tilly and Brunner, 1987). Providing support to caregivers will be required as elder care becomes a responsibility of more and more Americans (Doty, 1984; Stone, et al., 1988). Finally, better coordination of services between the private and public sector, and between formal and informal caregivers will be critical in order to better promote access to needed services in the future (Hughes, 1989).

Reduced Emphasis on Institutional Care and Greater Emphasis on Home and Community-Based Care

While advocates of home and community-based care have argued that by providing such care to elderly patients, total costs will be reduced and patient satisfaction will increase, research has not clearly demonstrated that cost savings in fact occur (Weissert, 1985; Weissert, et al., 1988; Kemper, et al., 1986). Despite the lack of the clear-cut results on cost savings from the substitution, there is evidence that elderly individuals prefer home and community-based care over institutional care when possible (Kemper, et al., 1986; Quinlan, 1989; Walker, 1989; Weissert, et al., 1988). Presently, many home and community-based LTC agencies are struggling to balance actual and perceived patient needs against their allowed benefits, rising costs and limits imposed by third party payers (Walker, 1989; Quinlan, 1989).

Among the LTC service arrangements that are slowly emerging to meet this increase in demand are continuing care/life care communities, which provide a broad range of social, medical and nursing services (Pies, 1987); social health maintenance organizations which expand coverage of community-based and nursing home care in a controlled manner while linking these expanded services to a complete system of acute care (Greenberg, et al., 1985; 1988); and geriatric assessment units which emphasize rehabilitation, restorative care and support for patients following an inpatient hospital stay with the goal of a return to independent living.

Continued Reluctance to Finance LTC

While numerous proposals to expand and reform the LTC system have been suggested over the past 10 years, few have been adopted (The Pepper Commission, 1990). Reasons given for the lack of reform include the following: the status quo is not bad (Wiener, et al., 1986); the vast system of informal care has made policymakers very fearful about expanding non-institutional services (Doty, 1984; Wiener, 1986); given the substantial demand for nursing home care (Scanlon, 1980; 1982), policymakers fear that expansion of the nursing home supply will only lead to more Medicaid patients and higher public expenditures (Tilly and Brunner, 1987; Wiener, 1986); some options, typically endorsed for reforming the acute care sector, are not applicable to LTC or are already part of the current system; risk pool arrangements have been hampered by a lack of actuarial and financial data to estimate expenditures, and by a belief that LTC is not an insurable risk (Wiener, 1986; Meiners, 1984); and finally, the elderly historically have been poor in relation to other aged groups, so that private sector approaches requiring substantial personal expenditures have been until recently "out of the question" (Wiener, 1986).

Among the recent efforts to reform the LTC system in the private sector have been: private LTC insurance (Wilson, 1989; Meiners, 1984), continuing care retirement communities (Pies, 1987; Wiener, 1986) and home equity conversion (Jacobs and Weissert, 1986). Public sector options have included Medicaid caps (Lawlor, et al., 1985), variations on block grants (Wiener, 1986), public LTC insurance (Mechanic, 1987), SHMOs (Greenberg, et al., 1985, 1988), modifications of existing services (Mechanic, 1987; Hughes, 1989; Wiener, 1986) and tax credits for the care of the elderly and disabled (Wiener, 1986; Lawlor, et al., 1985). It is clear that there will be an increase in the demand for LTC financing that will strain both the public and private sectors' financing mechanisms (Mechanic, 1987; Lawlor, et al., 1985; Wiener, 1986).

Need for Assistance to Informal Caregivers

Definite changes are occurring in the family structure that have increased the stress placed on the family. Among the changes that have taken place are: the increase in the proportion of women working outside the home; a high divorce rate; the geographic dispersion of family; the increase in the proportion of adults simultaneously caring for children and aging relatives; and the rise in proportion of older adults taking care of even older individuals (Stone, et al., 1988; Quinlan, 1989; Preston, 1984).

Given the increasing likelihood that today's adults will be required to provide financial, emotional and functional assistance to aging family members, options are being sought to support this essential group of people (Hughes, 1989; Quinlan, 1989; Doty, 1984; Stone, et al., 1988). To assist informal caregivers in

dealing with competing demands of children, parents, and jobs, policymakers are considering strategies to reduce caregiver "burnout" and "stress." Policy responses include respite and adult day care services to elderly individuals to mitigate the pressures placed on caregivers, and the adoption of employee benefits in the workplace that make allowances for care of elderly individuals and that encourage older workers to remain in the work force beyond age 65 (Schrank, et al., 1989; Hughes, 1989).

Trend 7: Growing Acceptance of Mental Health Services

Community-based Care

Mental disorders directly affect 15 to 20 percent of the U.S. population (DHHS, 1985). They range from relatively mild to very severe, may be episodic or long lasting and may be latent for long periods of time, or strike without warning (Scallet, 1990). Until the 1950s, most individuals suffering from mental illness were placed in large public institutions. Since that time, however, mental health care has expanded into the community, where a greater diversity of services is available both to individuals with serious disabilities and to those with more mild mental health problems (Scallet, 1990). A by-product of the deinstitutionalization trend has been the increasing number of homeless in many U.S. cities. The most recent data available on mental health utilization indicate that "a significant decline in the proportion of funds spent in state and county mental health hospitals was paired with the expansion of other organizations" such as community mental health centers, freestanding outpatient clinics and multiservice mental health organizations (Scallet, 1990). In addition, the advances in the understanding of biochemical causes and pharmacological treatment have expanded our ability to manage patients suffering from certain mental disorders.

Available data on mental health utilization suffer from the omission of important elements (including information on individual office-based mental health professionals, family physicians and other members of the larger health care and educational systems which have not specifically been identified as mental health organizations) and underestimates of actual usage (DHHS, 1987; Scallet, 1990).

Coverage of Mental Health Services

Over the past 10 years, the Medicaid program has broadened its traditional role as federal/state insurer of the poor to the major public funding source for long-term care for the elderly and disabled populations, and for people with mental retardation (Taube, et al., 1990). It is estimated that about 15 percent of total Medicaid dollars is spent on mental illness (Taube, et al., 1990). Medicaid mental health coverage suffers, however, from low enrollment of potential Supplemental Security Income (SSI) eligibles, restricted coverage and uneven adoption of optional benefits, low rates of reimbursement and a bias toward institutionalization (Taube, et al., 1990).

Medicare coverage of mental health services is limited (Lave, et al., 1990; Scallet, 1990). Some limitations have resulted from the fact that the program was specifically designed as an insurance program, covering the costs of acute illness and the medical management of chronic disabilities (Lave, et al., 1990). Less than 3 percent of the Medicare dollar is spent on mental health, leading to a concern that there is a serious underuse of mental health services by Medicare beneficiaries (Lave, et al., 1990). This trend is distressing as approximately 12 percent of the elderly population has some diagnosable mental disorder (Regier, 1988).

Private insurance companies began to provide restricted outpatient coverage for mental health in the 1960s. Since that time, however, great strides have been made in the medical management of both episodic and chronic disorders (Sharfstein, et al., 1989; Lave, et al., 1990). Private insurance coverage of outpatient mental health services has increased to reflect these changes, although it is still more restrictive for mental health than for non-psychiatric illnesses (Lave, et al., 1990).

After an initial rise in private insurance coverage for mental health services, there have been growing attempts to reduce coverage. Mental health services coverage is being limited because of the fear that insurance coverage will attract high-cost enrollees to the plan; the belief that enrollees are not interested in receiving benefits for mental health services; the fear that insurance coverage will increase demands and thus costs; the lack of clear, objective diagnoses and treatment outcomes; and the growing utilization of these services (Frank and McGuire, 1990).

Trend 8: Health Care Personnel

Of all industries monitored by the Department of Labor, the health care industry is the largest employer, and there has been dramatic growth in the number and types of personnel employed in the health care industry. This increase is due to both growth in actual number of personnel of a given type

and expansion of the categories of personnel. In fact, the Department of Labor recognizes over 700 different job categories in the health care industry. In 1988, over seven million workers were employed in health services work. By the end of the decade this sector of the economy will occupy over 10 million workers, representing one of the fastest growing employment sectors (U.S. Bureau of Census, 1990).

This growth in health care personnel was due in large part to the growth of technology, increased specialization and recognition of the hospital as a central focus of health care. In addition, massive outlays of federal funds in the early 1960s in response to a predicted shortage of health care personnel resulted in an increase in the number and size of health care training institutions and marked growth in the number of health care provider graduates.

Between 1960 and 1990, the supply of physicians nearly doubled. However, this increased supply of physicians has not changed substantially the proportion of those in primary care specialties. Less than 40 percent of the physicians are in primary care areas, with the balance practicing in medical specialties. As a result there is an over-supply of physician specialists and a shortage of primary care providers. In 1991, 66 percent of available family practice residency positions were not filled during the "matching" process with U.S. medical school seniors. This situation is a function of the lack of a coordinated physician personnel policy in the United States. Undergraduate and graduate medical education systems have operated independently of each other, and historically most graduates have opted for non-primary care specialties.

Even with this rapid increase in the number of physicians, the chronic shortage of physicians in rural and inner city areas continues to persist.

Also, until recently, there has been a steady decline in applications to most health care training programs. Graduates are facing ever increasing levels of indebtedness. A shortage of primary care providers has continued and there is a growing need for nurses and other allied health care workers.

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Quality of Health Care

Overview

Along with cost and access, quality is an essential characteristic of a health care system. Traditional methods of assuring quality of health care i.e., accreditation of training programs, licensure of providers, certification of facilities/organizations, professional scrutiny and use of the tort system, have had mixed results. These efforts to assure quality have been limited further by an elusive definition of quality and inadequate quality evaluation measures. As cost containment pressures grew, concerns arose that costs not be controlled at the expense of quality. These concerns gave rise to extensive research to define and measure quality and to expand programs by payers and the health professions to assess and assure quality of health care. The establishment of PSROs, followed by PROs reflected these concerns, but their effectiveness remains unclear. Current activities are expanding the definition of quality, heightening the importance of the consumer, creating improved measures and developing methods to continually enhance care. Four trends will continue to affect quality in the U.S. health care system.

Trend

1. Medical Malpractice
2. Licensure of Professionals and the Practitioner Data Bank
3. Development of Practice Guidelines
4. Focus on Quality Improvement

Trend 1: Medical Malpractice

Medical malpractice is a violation of tort law. Although inconsistent in its application and thoroughness, malpractice claims filed by patients seeking redress are a force in assuring quality of health care. Since the 1960s, the most important malpractice trends have been the substantial increases in claims filed and the explosive growth in the size of awards (Cohn, 1989). These trends have contributed to dramatic increases in medical liability insurance premiums, which were rising at an average annual rate of 21.9 percent in the mid-1980s. These increases are believed also to have had an effect on the accessibility of services. Health care costs have been affected by premium increases and increased "defensive medicine." Obstetric services seem to be affected the most, with physicians increasing prices or, in some cases, eliminating obstetrics from their practices. In Florida, the cost of malpractice insurance adds an estimated $1,119 to the cost of delivering each infant (Hatlie, 1990).

Efforts to alleviate the medical liability "crisis" have included actions by the states. In California, for example, the Medical Injury Compensation Recovery Act put a ceiling on non-economic damages, prevented double recovery of medical expenses and lost wages, and instituted a sliding scale limitation on attorney contingency fees (Hatlie, 1990). Although California's reform program appears to have achieved its goals (Cohn, 1989), the American Medical Association, breaking with tradition, asserts that federal reform is necessary since tort laws and insurance premiums vary widely from state to state.

The tort system has a substantial effect on cost and quality of care. While concern over malpractice does lead to improvements in some aspects of care delivery, it is inconsistent in its application and has many undesirable effects such as increased costs and over-treatment. However, the system of tort law is firmly rooted in our society and will continue to loom over health care.

Trend 2: Licensure of Professionals and the Practitioner Data Bank

Licensure has been defined as "a governmentally-created and operated process which grants to individuals who successfully meet the statutory requirements authority from the state to practice in a particular field of endeavor" (Hershey, 1989). Licensing laws historically have been adopted by the states for the purpose of "protecting the public from unqualified persons" (Hershey, 1989). Licensure processes and standards vary among states and among health professions, but typically require evidence of educational training and acceptable performance on a written or practical examination. There is growing interest in expanding beyond entry-level licensure to periodic evaluation of skills and knowledge throughout the practice lives of health care providers (Starke, 1990).

Concerns have also been raised about the marked variation among states in disciplinary actions against providers (Wolfe, 1990). For example, in 1988 the proportion of serious actions per 1,000 physicians ranged from a high of 8.55 to a low of zero. In the absence of evidence that physicians of lower competence settle in certain states, the range of disciplinary action rates suggests that medical boards differ in the level of quality of care that is assured in their respective states.

One noteworthy licensure development involves the recent establishment of the National Practitioner Data Bank by the U.S. Department of Health and Human Services under authority of the Health Care Quality Improvement Act of 1986. The data bank is the centerpiece of an effort to collect and disseminate information regarding malpractice settlements, judgments and adverse actions taken against health care professionals by health care entities or state licensing authorities. Health care entities are required to request information from the data bank each time a practitioner applies for clinical privileges and once every two years for physicians and dentists currently on the medical staff. Use of the data bank is intended to increase the quality of health care by facilitating the dissemination of information regarding claims, judgments or other adverse actions against practitioners regardless of the state in which these events take place (Kadzielski, 1990).

Trend 3: Development of Practice Guidelines

Several professional organizations have been using expert panels to develop guidelines describing appropriate and effective treatment for selected medical conditions. Recently, both the General Accounting Office (1990) and the Institute of Medicine (1990) have called for a comprehensive system for assessing and improving the quality of care. Practice guidelines and standards, a strengthened health care data system and enhanced local review systems are the components identified by the GAO report and suggested by the IOM Committee to Design a Strategy for Quality Review and Assurance in Medicare.

As part of this movement, The Agency for Health Care Policy and Research (AHCPR) within the U.S. Department of Health and Human Services has established a Medical Treatment Effectiveness Program (MEDTEP). As stated by AHCPR (1990a), the major goal of this program, authorized by the Omnibus Budget Reconciliation Act of 1989, is to:

> "improve the effectiveness and appropriateness of medical practice by developing and disseminating scientific information regarding the effects of presently used health care services and procedures on patients' survival, health status, functional capacity and quality of life."

Specific elements of MEDTEP include: medical effectiveness/patient outcomes research, data base development and research on dissemination methods.

One of the products of MEDTEP will be a set of clinical or practice guidelines. These guidelines are intended to "assist health care practitioners in the prevention, diagnosis, treatment and management of clinical conditions" (AHCPR, 1990b). The anticipated audience for the guidelines includes: practitioners, consumers, peer reviewers, accrediting bodies, academic medical centers, educators, researchers and payers. As discussed by Roper (1988), the potential value of such guidelines involves:

> ". . .better information for physicians and patients to use in making decisions, improved guidelines for medical practice, better protection for physicians from malpractice suits if guidelines are followed, better information for patients, whose expectations may be moderated by more complete information, and wiser decisions by health care purchasers."

Practice guidelines will have a role not only in clinical decision-making but also in reimbursement and in malpractice litigation. Although guidelines show great promise, caution has been expressed that the effectiveness/patient outcomes movement not be viewed as a panacea; guidelines will be expensive to develop, consensus may be slow in forming and guidelines will be difficult to implement and monitor (Epstein, 1990).

Trend 4: Focus on Quality Improvement

The model of continuous quality improvement based on Deming's prototype for industry is compatible with the concept of practice guidelines (Deming, 1986). This model calls for cooperation among all parties involved in the provision of services with the goal of improving the overall quality of care. The continuous improvement model does not emphasize outliers, but rather focuses on continuous "planning, doing, checking and acting" in the process of providing care to patients according to their medical and personal needs (IOM, 1990). Various departments and providers work together to improve the process and the outcome of care, and benefits accrue to the individual patients.

The components of the continuous improvement model can be used to identify and assess the various processes of delivering health care, and to observe the effectiveness of quality improvement innovations at different institutions (IOM, 1990). The overall quality of care improves through the integration of clinical plans and decisions and patient preferences. The model has the potential to play an important role in quality assessment innovations and could be extended into the arena of improving the quality of care through making relevant changes in the education of health professionals.

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Higher Education

Overview

While the nation's health professional schools will certainly be shaped by changes in health care, they will also need to be responsive to the forces which will reshape U.S. higher education over the next 15 years. In considering the future of health professional education, planners must remember that it is, in general, subject to the same forces affecting higher education. Clark Kerr (1990) has noted that, for higher education, the 1980s "were a non-historical decade in the sense that so little happened that made history. It was a status quo decade." While some of the forces identified in this section are similar to trends identified elsewhere—demography and the financing of health care—others such as curricular reform and accountability have a distinctive educational context. While the six trends are discussed individually, it is important to stress their interrelationship with each other. As a Virginia commission recently concluded, "the future will not be simply a linear extrapolation of the past . . . small events happening today will cause unexpected new patterns to emerge downstream" (Commonwealth of Virginia, 1989).

Trends

1. The Graying of the Professoriate
2. Increasing Diversity
3. Challenges in the Financing of Higher Education
4. Redefining Scholarship and the Role of Higher Education
5. Curriculum Reform
6. The Demand for Accountability

Trend 1: The Graying of the Professoriate

The enterprise of higher education in the United States experienced unparalleled growth in the 1960s and early 1970s. During this "Golden Age," higher education was characterized not only by booming student populations, expanding programs, diversification and increasing revenues, but also by the infusion of the largest cohort of faculty in history (Jacobs, 1990; Kerr & Gade, 1987; Schuster, 1990). During this growth period, postsecondary institutions added more than 352,000 faculty members to the 276,000 employed in the year 1960, increasing in number by 198,000 in the decade of the 60s alone (Jacobs, 1990). Growth slowed, however, in the late 1970s and early 80s. The academic labor market became saturated and "tenured." Instructional faculty increased only 18 percent between 1975 and 1988 (Gerald, Horn and Hussar, 1989).

The American academic profession has been dominated by the tremendous cohort of faculty educated and hired during the growth period of the 60s. The significance of this fact cannot be understated. Faculties have remained fairly constant, not only in role, but also in composition, lending stability to the profession (Jacobs, 1990). In addition, age distributions have implications for instruction, scholarship and academic leadership, directly affecting perspectives to which students are exposed as well as determining the degree of departmental vitality maintained with the orderly introduction of new faculty (Bowen and Sosa, 1989).

The "growth" cohort of the 60s, however, is now the "gray" cohort of the 90s. This cohort, whose infusion into academia determined the structure and stability of the profession in the second half of the century, is now approaching retirement age. Its impact on higher education as it leaves the system will be no less profound, and will be felt well into the next century. As this cohort ages, students will be confronted with faculty who are becoming more distant and removed from their own age and perspective (Kerr and Gade, 1987). However, the most obvious outcome from the aging of this cohort will be massive retirements in the late 1990s and early 2000s, resulting in severe faculty shortages.

Projections regarding faculty retirements by the year 2000 vary somewhat and are based on differing assumptions, but all are sobering. Between 20 percent and 30 percent of all the faculty in Michigan's state system are expected to retire by the year 2000 (Bowen and Sosa, 1989; Schuster, 1990). The state university system of Minnesota estimates that it will need to replace 70 percent of its faculty and the California postsecondary system, 64 percent of its faculty by the year 2000 (Bowen and Sosa). Uncapping the mandatory retirement age as planned in 1994 is expected to have little impact on the number of faculty retiring (Holden and Hansen, 1989). Not only is the system failing to produce adequate numbers of new PhDs, but candidates are taking longer to complete their degrees. In addition to anticipated retirements, institutions will continue to compete for PhDs with employers outside academia, where opportunities for PhDs are increasing (Bowen and Schuster, 1986). Nationwide, it has been estimated that by the year 2005, 340,000 new faculty, or 73 percent of those currently employed, will be needed (Schuster). Between 1992 and 2002, for every five positions in the arts and sciences, there will be just four candidates (Bowen and Sosa).

With expected stability in demand for higher education and anticipated deficits in the applicant pool, institutions and systems will turn their attention to the development of flexible strategies for recruiting and hiring faculty. Competition will force institutions to make academic work more attractive to potential faculty, requiring improvement of compensation, fringe benefits and working conditions. Some institutions' options will reflect those used during times of retrenchment, and may result in trimming or closing programs and reallocating positions. There is room for an expanded federal role in providing financial incentives for development of new scholars as well as support for the development of mid-career scholars (Bowen and Schuster, 1986).

Trend 2: Increasing Diversity

Demographic changes coupled with previously begun changes in enrollment patterns will produce a dramatic and challenging era of diversity in higher education institutions through the beginning of the next century. The student body increasingly will be characterized by diversity in ethnic, national and racial background, age and gender. In addition, part-time, differently-abled (e.g., physically handicapped or learning disabled) and "high risk" students will form a greater presence on campus. Although America traditionally has been a "melting pot," with assimilation the goal, "that image has increasingly been called into question. At its most basic, today's challenge calls for the creation of a society in which individual differences are respected and allowed to coexist" (Smith,

1989). Greater pluralism in the student body will create a need for greater faculty diversity and may amplify interinstitutional diversity as well.

Just as the nation's population as a whole is becoming more diverse, so too is the population enrolled in higher education, despite the fact that the proportion of minority students in higher education, while improving in response to federal, state and local efforts, lags behind the proportion in the general population (Smith, 1989). Figure 1 indicates the enrollment change by race and ethnicity from 1980 to 1988. During the period, minority enrollment rose more than 20 percent, compared with an increase of under 5 percent for non-Hispanic whites. Almost 95 percent of the increase in minority enrollment was accounted for by minorities other than blacks (Frances, 1990a). With regard to the 18-year-old population, projections from the age distribution of the current population indicate that this cohort will show dramatic increases in ethnic diversity by the year 2000, primarily because of a large Hispanic and Asian presence (Solmon, 1990).

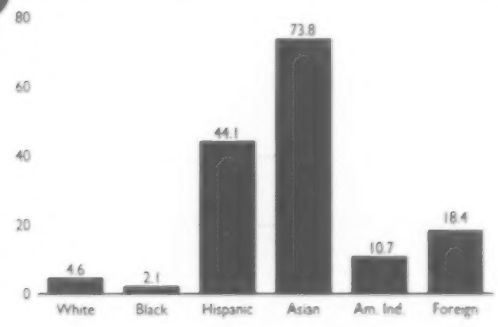
Despite dire predictions to the contrary, higher education enrollments rose during the 1980s, driven in large part by increases in the numbers of older female students, which offset declines in the numbers of students from the "traditional" 18-to-24 year old age group (Frances, 1990a, 1990b; Gerald, Horn and Hussar, 1989). As Figure 2 illustrates, women over 25 years old accounted for a majority of the enrollment growth in the 1980s. At the graduate and professional school level, increases in enrollment between 1976 and 1986 were due entirely to women, with women making up 49.5 percent of graduate school and 35.7 percent of professional school enrollment in 1986, up from 44.5 percent and 22.3 percent ten years earlier (The Carnegie Foundation for the Advancement of Teaching, 1989). By 1988, women constituted 54 percent of total enrollment, a proportion that is expected to continue through the end of the century. The number of older students, especially those age 35 and over, will continue to grow. By the year 2000, 19.5 percent of enrollees in higher education will be 35 or over, 20.7 percent age 25 to 34, and 59.8 percent under age 25 (Gerald et al.).

Between 1980 and 1987, part-time enrollment accounted for almost three-fourths of the total increase in higher education enrollment (Frances, 1990b), and the proportion of part-time students is expected to remain high. Part-time enrollment accounted for 41 percent of total enrollment in 1980 and 43 percent in 1988, at which level it is expected to remain through 2000 (Gerald et al., 1989). Although few data are available on the number of differently-abled students in higher education, perhaps three to six percent of entering freshmen currently identify themselves as having a disability. This number is likely to grow as more people in this group successfully complete high school and as efforts increase to provide them with equal access and support (Smith, 1989).

High risk students are extensions of high risk populations in society as a whole—women, minorities, the disabled, the economically disadvantaged—and are defined as those at risk of withdrawal from the educational experience (Jones and Watson, 1990). As these populations constitute an increasing proportion of college enrollment, institutions will be challenged to develop organizational responses to academic unpreparedness as well as to the nonacademic factors associated with risk of attrition. In addition to tradi-

Enrollment Change, by Race, 1980–1988 (Percent Increase)

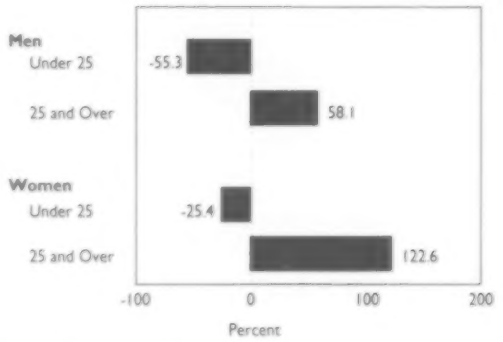
FIG.1



From Frances 1990a

Percent Distribution of the Increase in College Enrollment, by Age and Gender, 1980–1986

FIG.2



Source: U.S. Department of Education
From Frances 1990a

tional responses to diversity, such as tutorial and financial assistance, ethnic and women's studies programs and evening classes, higher education institutions will have to assess their fundamental capacity to organize for diversity (Jones and Watson; Smith, 1989). Kerr (1990) points out that the increase in high risk student enrollment can be viewed as crisis and adversity or as an opportunity for higher education to give consideration to the welfare of the underserved. He notes that, "the struggle between equality of opportunity based on merit versus equality of results based on numerical proportionality will intensify. It will be over admissions policies for students at all levels, but particularly also over diversity in the faculty to reflect the new diversity in the student body." The challenge will be to identify, attract and encourage prospective faculty among underrepresented groups (Schuster, 1990).

Although increased diversity will be seen throughout higher education, just as in the overall population, regional and institutional differences will be apparent. It will not be possible to evaluate access to higher education simply by looking at its totality. For example, the growth in minority populations will vary by region and state, with California, Florida, New York, New Jersey and Texas having the biggest increases (Levine, 1990), partly due to the fact that, in recent years, the trend has been for the majority of immigrants to settle in these four states (Solmon, 1990). In addition, some warn that there could be dramatically uneven distributions of various populations across institutions of higher education, with some being educated at expensive, highly selective schools and others clustered in less expensive two-year institutions, reflecting differences in access to financial resources, high school completion rates, perceptions of the value of education and quality of primary and secondary education (Smith, 1989). Figure 3 illustrates that in 1984 an uneven pattern already was in place. Although to a certain extent different institutions serve different purposes, "distribution according to racial, gender or age breakdowns raises serious questions for society" (Smith, 1989).

Trend 3: Challenges in the Financing of Higher Education

Higher education finance has been characterized in recent years by rapid expansion from a narrow emphasis on debt and equity to a much broader scope encompassing, among other things, research partnerships, investments and capital leases (Anderson and Meyerson, 1987). Despite increasing complexities in financial concerns, this broader scope will be essential to financial planners in addressing the challenges of the next century as the higher education enterprise encounters increased competition for resources, both manpower and funding; a more demanding clientele in terms of productivity and accountability; and increasing costs for technological advancement and facilities maintenance.

The cost of a college education is increasing rapidly (Fig. 4)—faster than the rate of inflation—due in large part to increasing costs of fringe benefits and facilities maintenance (Chafee, 1990; Evangelauf, 1990). It is estimated that current fund expenditures will increase from $115.5 billion in 1988-1989 to more than $144.4 billion (in constant 87-88 dollars) by the year 2000 (Gerald, Horn and Hussar, 1989). The increase in cost coincides with questions raised concerning the quality of education, beneficiaries of higher education and, related to this, how much should education cost, and who pays for it? These questions are emerging at a time of national and global economic uncertainty. The United States is burdened with an ever increasing national debt. Global competition for markets, goods and services is steadily increasing. Full implementation of the European Economic Community in 1992 will create a tremendous world economic power, providing incentive for similar arrangements in other parts of the globe. Yet, as local and national concerns become more global in nature, criticism that higher education is not addressing global perspectives adequately in preparing the workforce of the future casts doubts on the worth of the steadily rising cost of higher education.

Rising college and health professional school tuitions have had a substantial impact on the educational debt loads carried by new health practitioners, indebtedness that may influence career choice (Park, 1990).

Enrollment by Institutional Type and Race/Ethnicity, Fall 1984*

FIG.3

	All	White	Black	Hispanic	Asian	Native American	Foreign
Universities							
Public	18%	19%	9%	9%	17%	13%	28%
Private	6%	6%	4%	4%	7%	2%	14%
4-Year Colleges							
Public	25%	24%	39%	24%	24%	23%	22%
Private	14%	15%	14%	8%	9%	7%	20%
2-Year Colleges							
Public	35%	34%	39%	53%	43%	51%	15%
Private	2%	2%	4%	1%	1%	4%	1%

*Totals may not be 100 as a result of rounding.
Source: Center for Education Statistics 1987, p. 153
From Smith, 1989

Mean indebtedness for newly graduated dentists and physicians is now approximately $45,000 (Solomon, 1991).

State governments historically have played a major and steadily increasing role in supporting postsecondary education, contributing a much larger share of current fund revenues than the federal government. In 1980, for example, state governments expended $19.6 billion on higher education, twice the $9.5 billion contributed by the federal government (U.S. Department of Commerce, 1990). By 1986, state contributions almost tripled those of the federal government: 32.2 billion state dollars versus 13.6 billion federal dollars. However, state spending on higher education is slowing down, and has reached the lowest growth rate in 30 years with an increase of only 11.6 percent for the period 1989-1991 (Jaschi, 1990). Federal spending on higher education has decelerated as well, particularly in the area of health professional education. From 1980 to 1989, funding for health professional training dropped sharply, from $460.7 million to $211 million. Tight state and federal budgets are expected to continue well into the end of this century, forcing institutions to search for alternate sources of funds and ways to cut costs.

The role of state funds in postsecondary education cannot be ignored as a major source of revenue for public institutions. It is also effective in retaining talent within the state. In recent years, only a very small portion, 5 percent, has been in the form of need-based financial aid; the remaining 95 percent has subsidized tuition for all students (Fischer, 1990). The negative impact of state funding on private institutions is very real, however, and appears to be worsening. In 1985-1986 for example, tuition and fees at private institutions were five times higher those at public institutions and the gap is widening, driving middle class students away from private and toward public institutions. In fact, the ratio has been increasing over the last 15 years, from 4.5 in 1973-1974 to almost six in 1987-1988 (Fischer, 1990). This trend poses a threat to the vitality of the private sector as its share of enrollment declines, jeopardizing program diversity and affordability.

Year-by-Year Increases in Tuition and Fees at 4-Year Institutions

FIG.4

	Public	Private
1980–81	+4%	+10%
1981–82	+16	+13
1982–83	+20	+13
1983–84	+12	+11
1984–85	+8	+9
1985–86	+9	+8
1986–87	+6	+8
1987–88	+6	+8
1988–89	+4	+9
1989–90	+8	+9
1990–91	+7	+8

Source: The College Board
From Evangelauf

Postsecondary institutions have, in recent years, faced many challenges related to changes in tax-exemption criteria. The Tax Reform Act of 1986, in overhauling the American tax system, has already impacted higher education finance to a great degree by increasing the cost of philanthropy; by increasing the costs of financing facilities and equipment through restrictions on tax exemptions; and by restricting exemptions on certain forms of savings and income used by parents and students to finance college educations (Anderson and Meyerson, 1987). Additional challenges from governments can be expected. In an effort to offset the cost of providing services and in an attempt to reduce tax increases on businesses and property owners, for example, local governments are exploring levying new taxes on colleges and universities, attempting to remove tax exempt status from certain properties held by universities for purposes which may be taxable, such as athletic facilities and vacant lots; other proposals include taxing research grants as a business privilege tax (Pennsylvania officials, 1990; Pittsburgh officials, 1990).

The deterioration and inadequacy of facilities poses another major challenge to higher education in the coming decades. Research laboratories are rapidly becoming obsolete, libraries inadequate and deferred maintenance backlogs are escalating. Two-thirds of campus facilities are at least 20 years old; the other one-third are at least 30 years old. However, during soaring inflation and operating costs in the 70s and early 80s, maintenance was deferred, including maintenance of operating systems like sewers, roads and telecommunications. Renewal costs have been increased, too, due to more stringent government regulations regarding environmental safety and hazardous waste disposal. As facilities age, renewal and replacement costs will be more difficult to capitalize due to tightening budgets. Unlike in recent years, when facility renewal was underfunded at the expense of new facility development, facility renewal will need to become a central part of financial policy at the institutional and state level (Rusch, 1990).

Trend 4: Redefining Scholarship and the Role of Higher Education

Debate over the relative importance of faculty and institutional roles is not new to higher education. In the late 1800s, the amplification of responsibility to include research and service in addition to the traditional undergraduate teaching mission ushered in an era of ongoing tension among competing responsibilities. The influence of the German model of higher education that placed great emphasis on scientific research and the creation of state land-grant universities to serve the people were the primary instigators of faculty and institutional role expansion (Footlick, Wingert and Leonard, 1990; Grassmuck, 1990; Jones, Oberst and Lewis, 1990; Ludmerer, 1985). Today, rapidly increasing tuition is inspiring demands that higher education reinstate excellent teaching as a primary commitment and restructure faculty rewards to encourage more attention to teaching. Rather than retreating from research and service, however, higher education's pattern into the next century will be one of integrating the three responsibilities, and in fact adding a fourth function, development (Bok, 1990; Footlick et al.; Leatherman, 1990; Stauffer, 1990). The coming influx of new faculty to replace those who are retiring may well facilitate the redefinition of scholarship and the role of higher education (Schuster, 1990).

Tension arises from the academic system that rewards faculty research and publication with tenure and promotion while ignoring teaching efforts. As illustrated in Figure 5, the majority of faculty think that teaching should be the primary concern for promotion, but there are sharp differences among various types of institutions. A recent report by the Carnegie Foundation for the Advancement of Teaching calls for a new, pragmatic definition of scholarship as a four-part entity involving the discovery of knowledge, the integration of knowledge, the application of knowledge and teaching. Faculty would be rewarded for activities in all four areas, which would allow more flexibility in scholarly work and greater latitude for faculty in setting their own priorities (Footlick et al., 1990; Leatherman, 1990). Similar calls for reform have appeared as well in the literature on medical education, where the faculty rewards for research rather than teaching have been especially apparent, due in large measure to the need to attract funding. Many medical schools have established programs to encourage the development of, and reward for excellence in teaching, a trend that is likely to increase (Tosteson, 1990).

Higher education will see a continuation of the debate concerning the correct balance between research and teaching and the amount of reward to be associated with each. As the debate evolves, however, the better questions will become, "What is the correct balance for this institution, school or department? What are the needs of the stakeholders — students, citizens, society?" The responses to these questions will echo the diversity of American institutions of higher education.

The teaching versus research debate is seen by some as spurious: research and teaching are inseparable aspects of scholarship (Mayhew, Ford and Hubbard, 1990). Since World War II, however, the narrowing of the notion of research through increased attention to its immediate utility has resulted in the differentiation of research from scholarship and the loosening of the connection between research and teaching. Trends in policy and funding have encouraged this restricted view of research, especially in those sciences that offer immediate economic utility. The result has been conflict between the desire of government and industry to harness the resources of

The View From the Lectern — FIG.5

To assess the state of mind of the nation's professors last year, the Carnegie Foundation surveyed nearly 10,000 faculty members at 306 colleges and universities.

Should teaching be the primary concern for promotion of faculty? (Percent saying yes)

62%	All Faculty
21%	Research university
41%	Ph.D.-granting university
76%	Liberal Arts Colleges

Do your interests lie primarily in research or teaching? (Percent saying teaching)

70%	All Faculty
33%	Research university
55%	Ph.D.-granting university
83%	Liberal Arts Colleges

Does the pressure to publish reduce the quality of teaching at your university? (Percent saying yes)

62%	All Faculty
21%	Research university
41%	Ph.D.-granting university
76%	Liberal Arts Colleges

Has the balance of importance among teaching, research and service at your institution shifted in recent years?

5%	To teaching, away from research and service
26%	To research, away from teaching and service
17%	To teaching and research
39%	No change

Source: The Carnegie Foundation for the Advancement of Teaching
From Footlick et al., 1990

the university and the universities' interest in developing and transmitting knowledge for its own sake (Bok, 1990; Lindsay and Neumann, 1988). Accommodating both of these viewpoints will constitute a major challenge for higher education into the next century. Bok points out that, "American colleges and universities have ceased to be small, cloistered institutions serving a tiny elite," and are the recipients of over $40 billion annually in state and federal funds, obliging them to attempt to respond to society's needs. This may be especially true in state institutions, which are more explicitly obligated to the public. Continued pressure for both applied and pure research, then, will prevail.

Contained in the expanded definition of scholarship is a greater sense of higher education's obligation to serve society on local, national and global levels, not only to justify public investments but for moral reasons as well (Bok, 1990). This has special relevance to health professional education and the growing emphasis on attending and responding to the needs of the public. Schroeder, Zones and Showstack (1989) have noted, for example, that "academic medicine is entrusted by society with the responsibility to undertake several important social missions, including education, patient care and research, toward improving the health of the public." Although in the last four decades academic medicine has had outstanding success in its advances in biomedical science, the current content of education and research "is becoming increasingly discordant with the social, behavioral and clinical problems commonly presented by today's patients." Responsiveness to the needs of the public will be necessary to avoid violation of the public trust.
Growing involvement in economic and cultural development represents yet another role for higher education, perhaps an extension of the service function. The combination of academic leaders needing revenues, industrialists looking for renewed competitiveness and state and federal governments attempting to restore economic vitality has resulted in the dramatic growth of industry-university liaisons. The change from an industrial to an information economy has made human capital a central concern, and, given the educational orientation of the evolving economy, has made the university an active resource in redressing economic ills (Fairweather, 1988). The "partnership universities" that have embraced this new mission assume responsibility for regional development, and in return benefit when the region prospers economically, culturally and intellectually (Stauffer, 1990). As more institutions assume this posture, faculty and administrators will be challenged to ensure that academic standards and educational missions are not compromised, and that patterns of involvement with development are crafted on a case by case basis (Fairweather, 1988).

Trend 5: Curriculum Reform

If, as Mayhew et al. (1990) contend, "...the history of higher education is a chronicle of persistently confronting and successfully responding to challenges coming from the larger society," American higher education is entering the next century sufficiently challenged. Mounting financial pressures due to the country's steadily growing national debt and declining ability to compete in world markets; rising numbers of nontraditional students; an aging society in which poverty, homelessness, and functional illiteracy are escalating; and diminishing public confidence in education in general are but a few of the challenges confronting higher education (Levine, 1990; Mayhew et al.; Commonwealth of Virginia Commission, 1989). Coupled with the rapidly rising costs of a college education, criticism of the viability of higher education in educating a society able to solve the problems it faces has provoked lively debate regarding curriculum, its content and purpose.

One of the more vocal conversations regarding curriculum reform relates to the balance and relationship between a liberal education and career or professional training. As our society assumes a more global orientation, it is evident that foreign language instruction and knowledge of other cultures will assume greater significance (Levine, 1990; Mayhew et al., 1990). The need for a multicultural perspective is additionally important in light of increasing cultural diversity within our own borders. Less clear, however, and forming the nucleus of continuing debate, is the degree of multiculturalism to include in curricula which will provide students with clearer understandings of other cultures and values without jeopardizing a clear sense of their own (Ravitch, 1990). Such debate can be expected to continue well into the next century as the student population reflects the increasing diversity that will characterize the population in general.

It is generally acknowledged that the rate of societal change is accelerating, as is change in the world order. Higher education is being challenged to educate a workforce that is not only competent and competitive, but also able to think critically and solve yet to be identified problems (Levine, 1990; Mayhew et al.,

1990; Commonwealth of Virginia Commission, 1989). The acquisition of critical thinking skills is assuming centrality in curriculum evaluation and reform, particularly with the development of "problem-based learning" components in medical education. Incorporating global and multicultural perspectives and encouraging critical thinking will not be sufficient, however, in addressing the needs of the future. Higher education must enhance the development of attitudes and skills which foster lifelong, continuous learning (Levine, 1990).

Pressure for review and reform is being exerted from many quarters. Consumers, paying more and more for a college education, are demanding not only access and choice, but also satisfaction. Taxpayers and public officials are demanding more accountability from institutions and systems, and such accounting entails scrutiny of curriculum, its objectives, processes and outcomes. Evaluating and reforming curricula in higher education will be effected through a variety of approaches. Some educators endorse bold experimentation (Levine, 1990) while others advocate conservative approaches which narrow institutional scope and responsibility (Mayhew et al., 1990). Whatever approaches are taken, however, will reflect the diversity in mission and philosophy of American postsecondary systems and institutions.

Trend 6: The Demand for Accountability

Institutions of higher education are finding themselves in greater competition for funding and encumbered with the obligations of embracing diversity, serving the state and the public, and contributing to economic development, along with their traditional responsibilities of teaching and research. As such, accountability is growing in importance, with additional stakeholders expecting to be informed of outcomes and effectiveness. The initial movement toward accountability in the early 1980s was aimed at institutional reinvigoration and excellence in the outcomes of the educational endeavor, a renaissance in American higher education. This gradually transformed into a consumerist movement involving demands on a more mechanistic level for statements of objectives and measurement of success in meeting those objectives, with "the explicit threat of external intervention in institutional affairs if institutions didn't mend their ways" (Nichols, 1989). By 1987, two-thirds of the states had taken steps to acquire evidence of public institutions' accountability for producing desired outcomes for students (Banta, 1988). At issue is the traditional prerogative of institutional autonomy in the face of involvement—some would say intrusion—of external forces, as well as the ability of institutional leadership to take a dominant role in defining the limits of autonomy (Mortimer and Edwards, 1990).

Traditionally, excellence in higher education is judged in three ways: by its selectivity and admission standards, by its financial resources and by its reputation for prestigious faculty and famous graduates (Mortimer and Edwards, 1990). A strength of American higher education, however, is the diversity found in its students and institutions. These three traditional views of excellence ignore all but the most elite schools, and more useful ways of assessing excellence are coming to the fore. Outcomes assessment and accountability are being addressed on two fronts, student outcomes and institutional effectiveness. Student outcomes typically are measured by results on academic tests, student and former student ratings, results on certification and licensure exams, retention and graduation rates, employment and graduate study rates, and employers' satisfaction with graduates (Chamberlain and Vandaniker, 1990). Surveying student attitudes and goals and following student progress toward those goals have been suggested as additional methods (Parnell, 1990).

The assessment of institutional effectiveness consists of the following four components: a clear statement of mission and goals; identification of intended departmental or programmatic objectives that support the accomplishment of the overall mission and goals; means for assessment of the extent to which departmental goals have been accomplished; and utilization of assessment results to improve or change intentions or operations (Nichols, 1989). Since each institution has unique goals and missions, "in this diverse system of colleges and universities, institutional effectiveness measures will relate more to institutional mission and student population standards than will any national testing program" (Parnell, 1990). This view of institutional effectiveness will result in greater responsiveness to the needs of those served by each institution and facilitate the performance of higher education's multiple roles. If institutions choose to define their missions and responsibilities narrowly, they risk settling for limited portions of both responsibility and financial support (Schroeder et al., 1989).

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Appendix B: Activities of The Pew Health Professions Commission

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Survey of Practitioners' Perceptions of Their Education

Advisory Panels

Advisory panels for allied health, dentistry, health management, medicine, nursing, pharmacy, public health, and veterinary medicine inform the work of the Pew Commission and work toward a consensus among the health professions for the Commission's Agenda for Action.

The advisory panels provide broad representation and a way to integrate specific issues and themes from the various health professions into the work of the Pew Commission. In their deliberations, each panel is identifying: the degree to which the Pew Commission's Agenda for Action reflects the reality of issues within the profession; where has the profession responded well and what remains unfinished; what are the important issues within the profession that the Commission has not addressed; and what types of strategic initiatives will address the change issues identified at the school and program level.

The work of the advisory panels will be disseminated throughout 1992.

Advisory Panel for Allied Health

Meeting Dates:
June 4-6, 1991
October 8-9, 1991

Co-Chairpersons

Keith D. Blayney, Ph.D.
Dean
School of Health Related Professions
University of Alabama

Leopold G. Selker, Ph.D.
Associate Dean and Professor
College of Associated Health Professions
University of Illinois, Chicago

Pew Commission Liaison

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Distinguished Regents Fellow
Tennessee Board of Regents

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Director
Imaging and Therapy Programs
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School of Medicine
Yale University

Karen Karni, Ph.D.
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University of Minnesota

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Thomas Jefferson University

Sherry K. Makely, M.S.
Director
ADD-A-COMP Program
Connelly Allied Health Education Center
Methodist Hospital of Indiana

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Academic Dean and Professor
School of Health Sciences and Human Services
State University of New York

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Student of Physical Therapy
Fourth Year
Howard University

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Dean
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University of Connecticut

Perry G. Rigby, M.D.
Vice President of Health Affairs
Louisiana State University Medical Center

Rose Y.L. Tseng, Ph.D.
Dean
School of Applied Arts and Sciences
San Jose State University

Brady J. Vardemann, M.S.
Deputy Commissioner
Vocational Technical Education
Montana University System

Advisory Panel for Dentistry

Meeting Dates:
June 11-13, 1991
September 24-25, 1991

Chairperson

James E. Kennedy, D.D.S.
Dean
School of Dental Medicine
University of Connecticut

Panel Staff Liaison

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Associate Professor
School of Dental Medicine
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Pew Commission Liaison

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Jay Gershen, D.D.S., Ph.D.
Chairman
Public Health Dentistry
UCLA School of Dentistry

Joel F. Glover, D.D.S.
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Harvard School of Dental Medicine

H. Garland Hershey, D.D.S., M.S.
Vice Chancellor
Health Affairs
University of North Carolina at Chapel Hill

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University of Kentucky

Jennifer Rankin
Student of Dentistry
Third Year
University of Iowa

Marilyn Woolfolk, D.D.S.
Director of Student Affairs
School of Dentistry
University of Michigan

Advisory Panel for Health Management

The creation of an advisory panel for health management was decided upon by Pew Commission members at their April meeting. This panel was not yet formally organized at the time *Healthy America: Practitioners for 2005* went to press.

The advisory panel for health management will convene in the Fall of 1991.

Advisory Panel for Medicine

Meeting Dates:
June 17-19, 1991
September 26-27, 1991

Chairperson

Don E. Detmer, M.D.
Vice President for Health Sciences
School of Medicine
University of Virginia

Panel Staff Liaison

Julia Elizabeth Connelly, M.D.
Professor of Medicine
Division of General Medicine
University of Virginia

Pew Commission Liaison

Robert Graham, M.D.
Executive Vice President
American Academy of Family Physicians

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Student of Medicine
Fourth Year
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Dorothy F. Bainton, M.D.
Professor and Head
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School of Medicine
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Chairman and Professor
Department of Family and Community Medicine
School of Medicine
University of Missouri, Columbia

William H. Danforth, M.D.
Chancellor
Washington University

Catherine DeAngelis, M.D., M.P.H.
Associate Dean for Academic Affairs
Professor of Pediatrics
The Johns Hopkins University

John Eisenberg, M.D.
Chairman
Department of Medicine
School of Medicine
University of Pennsylvania

Fernando Guerra, M.D.
Director
San Antonio Metropolitan Health Department

Frederick J. Humphrey, II, D.O.
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School of Osteopathic Medicine
University of Medicine and Dentistry of New Jersey

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School of Medicine

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Salt Lake City, Utah

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Institute for the Improvement of Medical Care and Health
New England Medical Center Hospitals

Advisory Panel for Nursing

Meeting Dates:
June 23-25, 1991
October 3-4, 1991

Chairperson

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School of Science and Health
The William Paterson College of New Jersey

Panel Staff Liaison

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University of Wisconsin, Milwaukee

Pew Commission Liaison

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United Health Services

Barbara A. Donaho, M.A., F.A.A.N.
President
Nursing and Patient Services
St. Anthony's Hospital, Inc.

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Nursing
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University Hospital
Clinical Associate Dean
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Chapel Hill

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Washington State Department
of Health

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Department of Health Services
Administration
Graduate Program in Health and
Hospital Administration
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Patient Services
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Los Angeles

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Scarborough, Maine

Advisory Panel for Pharmacy

Meeting Dates:
June 25-27, 1991
September 19-20, 1991

Chairperson

Marcellus Grace, Ph.D.
Dean
Xavier College of Pharmacy

Panel Staff Liaison

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Associate Executive Director
American Association of Colleges
of Pharmacy

Pew Commission Liaison

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University of Florida

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School of Health Related
Professions
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Advisory Panel for Public Health

Meeting Dates:
June 19-21, 1991
October 1-2, 1991

Chairperson

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Columbia University

Panel Staff Liaison

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Pew Commission Liaison

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State of Florida

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Chairman
Department of Preventive
Medicine
Vanderbilt Medical School

Charles E. Smith, D.D.S., M.P.H.
Director
Dental Division
Indiana State Board of Health

Advisory Panel for Veterinary Medicine

Meeting Dates:
June 12-14, 1991
September 17-18, 1991

Chairperson

William R. Pritchard, D.V.M., Ph.D., J.D.
Co-Director
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Former Dean
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Pew Commission Liaison

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Inspection Service
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Assistant Dean
Professional Veterinary
Medical Curriculum
College of Veterinary Medicine
and Biomedical Sciences
Colorado State University

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Merced, California

Roger L. Lukens, D.V.M.
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Department of Veterinary
Technology
School of Veterinary Medicine
Purdue University

Robert D. Phemister, D.V.M.
Dean
New York State College
of Veterinary Medicine
Cornell University

Samuel E. Strahm, D.V.M.
Osage Animal Clinics, Inc.

Health Policy Task Forces

Health policy task forces representing the federal, state, health professional and higher education policy communities identify policy issues relevant to the Pew Health Professions Commission's Agenda for Action; develop informed policy recommendations for policy action on these issues; and build a coalition of advocacy that is helpful in securing the creation of policy or passage of federal and state legislation that provides policy direction and empowers the nation's health professional schools to change.

The task force meetings provide forums that allow detailed consideration of critical issues, such as finance, governance, licensure and accreditation, that often inhibit change in health professional education.

Health policy task force meetings for the state and federal policy sectors will take place in the Fall of 1991. Task force meetings for the health professional and higher education policy sectors are planned for the Spring and Summer of 1992.

State Policy Task Force
Steering Committee

Meeting Dates:
August 6-7, 1991

Chairperson

Stephen N. Collier, Ph.D.
Dean
College of Allied Health Sciences
and Physical Education
Towson State University

Participants

Dennis Beatrice
Vice President
Henry J. Kaiser Foundation

Rachel Block
Executive Director
Office of Majority Leader
New York State Assembly

David Denton, Ph.D.
Director
Health and Human Services
Program
Southern Regional Education
Board

John Durant, M.D.
Vice President for Health Affairs
Director of Medical Center
University of Alabama, Birmingham

Eugene W. Fowinkle, M.D.
Associate Vice Chancellor for
Health Affairs
Vanderbilt University

Allen H. Hindin, D.D.S.
Director
Dental Services
The Community Health Center
Danbury Hospital

The Honorable David
Hollister
Chairman
Appropriations Subcommittee on
Social Services
Michigan House of Representatives

J. Douglas Koelemay
Managing Director
Agenda Communications

Richard Merritt
Director
Intergovernmental Health Policy
Project
The George Washington
University

Jeffrey Miller
Associate Dean
Administration and Planning
Northwestern University
Medical School

Edward Salsberg
Director
Bureau of Health Resources
Development
New York State
Department of Health

Joy Wilson
Director
Health Policy
National Conference of State
Legislators

Federal Policy Task Force
Steering Committee

Meeting Dates:
August 27-28, 1991

Chairperson

John C. Greene, D.D.S.
Dean
School of Dentistry
University of California,
San Francisco

Participants

Roger J. Bulger, M.D.
President
Association of Academic Health
Centers

John Fauser, Ph.D.
Director
Council for Allied Health
Education and Accreditation

Cornelius L. Hopper, M.D.
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Liz McCloskey
Legislative Assistant
The Honorable John C. Danforth
United States Senate

Julius Richmond, M.D.
Department of Social Medicine
Harvard Medical School

Richard Van Wagenen
Legislative Assistant
The Honorable James
A. McDermott, M.D.
United States House of
Representatives

Research

In an effort to create a center for advocacy for change in health professional education, the Pew Health Professions Commission is measuring attitudes towards health care in the United States. The Commission is assessing the perceptions of providers, health professional educators, health care employers, government policymakers, consumers and payers toward health care education and health care in America. The findings from these studies will be disseminated through professional literature and popular media to help shape the Commission's activities and provide health professional schools with information related to policy.

In collaboration with Louis Harris and Associates, the Pew Commission conducted its first study in the Spring of 1991. Practicing dentists, nurses, pharmacists, physicians and veterinarians were surveyed to obtain their opinions about their education and the importance of formal training in each of the competencies identified by the Pew Commission. Other information regarding their practice environments, their satisfaction with practice and their perceptions of the health care system were collected as well.

Surveys are planned for allied health and public health professionals. In addition, surveys of others affected by the health care system will be conducted over the next two years.

Overview

Survey of Practitioners' Perceptions of Their Education

The purpose of the first Pew Commission survey was to obtain practicing professionals' opinions about their training in general, and the Commission's competencies for 2005, in particular. The results of the poll are intended to inform the work of the Commission and to provide health professional schools with information on how their graduates perceive their training and their practices.

This survey was conducted from February to March 1991 by Louis Harris and Associates for the Pew Health Professions Commission. A total of 1,501 telephone interviews were conducted with probability samples of five health professions: dentists, registered nurses, pharmacists, physicians and veterinarians.

The samples were limited to health professionals who met the following criteria: graduated from their professional school in 1960 or later; attended a professional school in the United States; and spent an average of twenty hours or more per week in direct patient or client care activities.

The following describes the sampling specification in greater detail:

Dentists

The sample of 300 dentists surveyed was selected from a list of more than 177,000 dentists. Two random samples were selected from two separate universes of all private practice dentists in the continental United States:

- General practitioners
- Specialists

The list from which the samples were drawn includes members and nonmembers of the American Dental Association.

Nurses

The sample of 300 nurses surveyed was randomly selected from the universe of over two million prospects of *R.N. Magazine*. The list is drawn from state licensing registries.

Pharmacists

The sample of 301 pharmacists surveyed was randomly selected from over 150,000 pharmacists in the continental United States included in the National Association of Boards of Pharmacy (NABP) list of practicing licensed pharmacists. The list is compiled by state licensing boards and the NABP.

Physicians

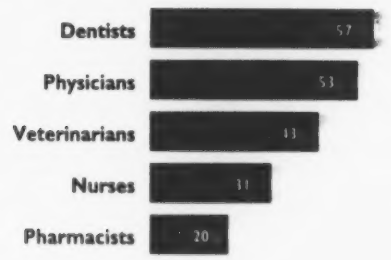
The sample of 300 physicians surveyed was selected from a list of more than 548,000 physicians maintained by Business Mailers Inc. (BMI), one of the largest brokers of the American Medical Association (AMA) file and the company responsible for the mail-out of Physicians Desk Reference. The AMA file includes both association members and nonmembers. Random samples were selected from three separate universes of all physicians in the continental United States (no doctors of osteopathy were included) as follows:

- General practitioners, including physicians in general practice, internal medicine, obstetrics-gynecology and pediatrics
- Surgery specialists
- Remaining medical specialists

In addition, physicians working in veterans or military hospitals and all medical residents were excluded from the three universes before the selections were done.

TABLE 1

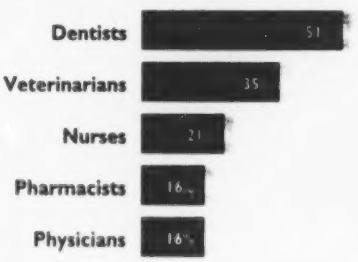
Percent of Respondents Indicating they Received Excellent Training in Treating Disease (n = 1501)



Source: Pew Health Professions Commission

TABLE 2

Percent of Respondents Indicating they Received Excellent Training in Preventing Disease (n = 1501)



Source: Pew Health Professions Commission

TABLE 3

Health Professionals Indicating that it is Very Important for Schools to Provide Formal Training in the Respective Competencies (n = 1501)

Competency	Percent Responding Very Important
How to communicate effectively with patients and their families	91
Problem-solving and independent thinking	88
Medical ethics	84
How to diagnose & treat disease	82
How to pursue a lifetime of continuous learning	82
How to foster wellness and encourage preventive behaviors	79
How to involve patients/clients and their families as partners in health care	75
How to work effectively in teams with other health care professionals	65
How to factor cost implications of treatment and care into your decision-making	55
How to ensure access to good health care for all segments of the population, including the least advantaged	55
How to manage large volumes of scientific information	48
How to evaluate the appropriateness of complex and costly technology	47
How to respond to the increasing role in and scrutiny of your work by public, government and health insurers	47
How to understand and respond to the diverse needs and values of different cultural or ethnic groups in your community	45
How to understand and support the important role that service agencies in your community play in meeting the health needs of your patients	40
How to work as an employee in a managed care setting*	34

* *Results are reported for human health professionals only*

Source: Pew Health Professions Commission

Veterinarians

The sample of 300 veterinarians surveyed was randomly selected from BMI's circulation list of *Veterinary Medicine* and *Veterinary Economics* magazines, consisting of more than 53,000 veterinarians. Samples were drawn from two separate universes of veterinarians:

- Veterinarians who treat predominantly small animals, and
- Veterinarians who treat predominantly large animals, or both small and large.

Initial Findings

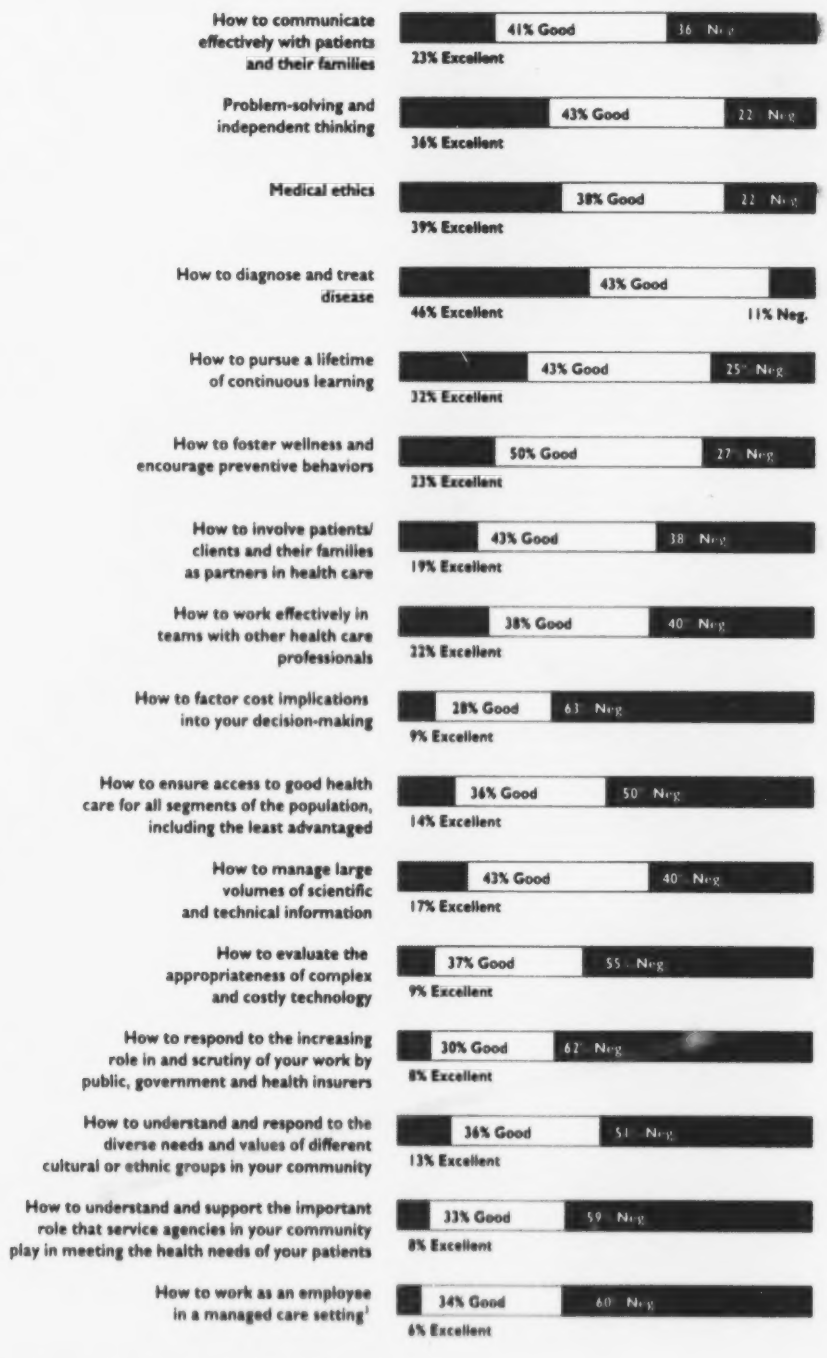
At the time *Healthy America: Practitioners for 2005* went to press, the analysis of the survey had only begun. Detailed reports on findings from both within and across health professions are under development. However, overall responses to four survey questions are shown in Tables 1-4. Tables 1 and 2 present, by profession, responses of those indicating they received excellent training in preventing and treating disease respectively. Many of the competencies advanced by the Pew Commission are presented in rank order according to percent of respondents indicating that it is very important for health professional schools to provide formal training in this area (Table 3). For each competency, the results to the question "considering the demands placed on you in your residency and your practice, do you think that your school did an excellent, good, fair or poor job of preparing you?" include responses for only those who graduated between 1980 and 1990 (Table 4).

Review of these findings suggests the following conclusions:

1. Health professionals — particularly physicians — give their schools lower grades on the training they received in preventing disease than they do in regard to treating disease.
2. There are disparities among the professions in rating areas of training considered *important*. However, majorities of all five professions identify seven *very important* areas of professional training:
   - How to communicate with patients and families
   - Problem-solving and independent thinking
   - Medical ethics
   - Diagnosis and treatment of disease
   - How to pursue a lifetime of continuous learning
   - How to foster wellness and encourage preventive behaviors
   - How to involve patients/clients as partners in health care
3. Variations exist across the health professions in their ratings of the *adequacy* of their training in specific areas. However, at least half of health professionals give their schools negative grades with regard to training them to:
   - Factor cost implications into their decision-making
   - Respond to public, government and insurers' involvement and scrutiny
   - Understand and support the role of community service agencies
   - Work as an employee in a managed care setting
   - Evaluate the appropriateness of costly technology
   - Understand and respond to the needs of different cultural and ethnic groups
   - Ensure access to good health care for all segments of the population, including the least advantaged

TABLE 4

Health Professionals' Ratings of their Training in each of the Pew Health Professions Commission's Competencies (n = 1501)[1,2]


How to communicate effectively with patients and their families
41% Good
36 Neg
23% Excellent
Problem-solving and independent thinking
43% Good
22 Neg
36% Excellent
Medical ethics
38% Good
22 Neg
39% Excellent
How to diagnose and treat disease
43% Good
46% Excellent
11% Neg.
How to pursue a lifetime of continuous learning
43% Good
25 Neg
32% Excellent
How to foster wellness and encourage preventive behaviors
50% Good
27 Neg
23% Excellent
How to involve patients/ clients and their families as partners in health care
43% Good
38 Neg
19% Excellent
How to work effectively in teams with other health care professionals
38% Good
40 Neg
22% Excellent
How to factor cost implications into your decision-making
28% Good
63 Neg
9% Excellent
How to ensure access to good health care for all segments of the population, including the least advantaged
36% Good
50 Neg
14% Excellent
How to manage large volumes of scientific and technical information
43% Good
40 Neg
17% Excellent
How to evaluate the appropriateness of complex and costly technology
37% Good
55 Neg
9% Excellent
How to respond to the increasing role in and scrutiny of your work by public, government and health insurers
30% Good
62 Neg
8% Excellent
How to understand and respond to the diverse needs and values of different cultural or ethnic groups in your community
36% Good
51 Neg
13% Excellent
How to understand and support the important role that service agencies in your community play in meeting the health needs of your patients
33% Good
59 Neg
8% Excellent
How to work as an employee in a managed care setting[3]
34% Good
60 Neg
6% Excellent

[1] *Competencies ordered according to importance ranking in Table 3.*
[2] *Fair and poor responses are combined and reported in the negative category.*
[3] *Results are reported only for human health professionals who graduated from professional school between 1980 and 1990.*

Source: Pew Health Professions Commission

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Appendix C: Acknowledgements

The development and publication of *Healthy America: Practitioners for 2005* was funded by a grant from The Pew Charitable Trusts. The opinions expressed in this report are those of the Pew Commission and do not necessarily reflect the views of The Pew Charitable Trusts.

Participating Organizations

The following organizations have sent representatives to meetings of the Pew Health Professions Commission:

American Association of Colleges of Nursing
American Association of Colleges of Osteopathic Medicine
American Association of Colleges of Pharmacy
American Association of Dental Schools
American Medical Association
American Psychiatric Association
American Society of Allied Health Professions
Association of Academic Health Centers
Association of American Medical Colleges
Association of American Veterinary Medical Colleges
Association of Schools of Public Health
Association of University Programs in Health Administration
National Fund for Medical Education

The Pew Health Professions Commission wishes to acknowledge the following individuals for their contributions to *Healthy America: Practitioners for 2005*.

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Durham, North Carolina

Meetings of The Pew Health Professions Commission

June 27-28, 1990

November 11-12, 1990

April 29-30, 1991

September 11-12, 1991

December 2-3, 1991

February 24-25, 1992

September 28-29, 1992

All meetings convene in Washington, D.C.

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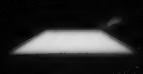

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